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GordonDerr
ATTORNEYS AT LAW

April 20, 2009

VIA HAND DELIVERY

Members of the City of Tukwila City Council
6200 Southcenter Blvd.
Tukwila, WA 98188

Re: Comments on City of Tukwila Shoreline Master Program Update
(for City Council hearing on April 20, 2009)

Dear City Council Members:

We represent the James Campbell Co. LLC and The Realty Associates Fund VII, L.P., both of which own property in the City of Tukwila along the Green/Duwamish River. We also represent International Airport Centers LLC, which owns property in the City's annexation area along the river. All of our clients' properties are developed with existing commercial/light industrial buildings occupied by a variety of tenants.

This letter supplements our previous comments to the Planning Commission and City Council. We appreciate the progress made by the Planning Commission in some areas; however, significant concerns remain with the draft SMP. This letter addresses those areas where we feel additional changes are necessary for the SMP to meet its intended objectives with consistency and fairness and to be legally supportable. This letter first addresses specific language changes that we believe the Council should make to the draft SMP's provisions regarding "preexisting" uses and structures as recommended by the Planning Commission. The letter then provides supporting analysis regarding the necessary changes to the draft SMP.

I. Changes are needed to Section 14.6 regarding preexisting uses and structures.

As noted above, all of our clients' properties are investment grade assets developed with existing commercial/light industrial buildings occupied by a variety of tenants. The proposed buffers in the draft SMP will not only run through our clients' existing buildings in many cases, but through other buildings in the proposed buffer as well. For example, Exhibit A shows the James Campbell Company's Glacier Building and Exhibit B shows the impact of the proposed buffer on that building.¹

Because the draft SMP allows only very limited uses in the buffer area, the existing use of the portions of our clients' buildings that lie within the proposed buffer (and the structures themselves within the buffer) would become nonconforming under the proposed SMP.

¹ Attached hereto as Exhibit C is the map generated by the City from which Exhibit B was derived.

DATE 4-20-09
EXHIBIT 5
PROJECT NAME
Council Review SMP
Update L06-088
FILE NO

Unfortunately, the Planning Commission's proposal does not provide sufficient protection of nonconforming uses and structures (or "pre-existing" uses and structures, in the Planning Commission's terminology) in this situation, causing a severe negative impact on the value of our clients' properties. The following specific issues need to be addressed (we have provided specific proposed language changes in Exhibit D hereto²):

a. Ability to change pre-existing uses within pre-existing structures that straddle the buffer line.

The Planning Commission's proposal does not allow a pre-existing use to be changed to a new use that would not comply with the SMP's use provisions, including its use provisions for the proposed buffer. Unfortunately, the Planning Commission's proposal appears to define a change of use such that any change between use categories in the zoning code is a change of use. However, the use categories in the zoning code are extremely narrow. *See* TMC ch. 18.30 (covering C/LI zone in which the James Campbell Company's properties are located), Exhibit E hereto.

We believe the SMP must provide that, where a pre-existing use is located in a pre-existing structure that is located partially within and partially outside of a required buffer, the use may be changed to any use that complies with the use regulations that apply in the applicable shoreline environment outside of the buffer area. *See* Proposed Language for §14.6.A.4 in Exhibit D hereto. In other words, the use regulations for the buffer area would not apply to such a change of use. This revision is needed to give owners of existing buildings reasonable flexibility in finding new tenants when re-leasing spaces that become vacant, as it may be difficult or impossible to timely find a new tenant engaged in exactly the same use as was the vacating tenant.

b. Ability to expand pre-existing uses within pre-existing structures that straddle the buffer line.

The Planning Commission's proposal allows expansion of pre-existing uses only to comply with public health and safety regulations. We believe the SMP must allow expansion of pre-existing uses when those uses occur within pre-existing structures that straddle the buffer line, the expansion only occurs within the structure, and the pre-existing use complies with the use regulations that apply in the applicable shoreline environment outside of the buffer area. *See* Proposed Language for §14.6.A.1, 2; §14.6.B.8; and §14.6.C.2 in Exhibit D.

Such an approach is necessary to give owners of existing buildings reasonable flexibility in re-leasing space that becomes vacant. Many of our clients' buildings have multiple tenants. If the tenant in one space vacates, and the tenant in the adjacent space is looking to expand, the owner should have the flexibility to allow the latter tenant to take over the vacated space. Otherwise, the owner may not only be unable to timely re-lease the vacant space, but may also lose the tenant who is unable to expand.

² For the Council's convenience, Exhibit D includes the language change that was requested in our March 16 comment letter to the Council.

Simply put, since the City is (appropriately) willing to allow existing structures to remain despite being partially within the required buffer, there is no reason to unduly limit the uses to which the portion of the building in the buffer may be devoted, when the rest of the building may lawfully be used for any use allowed in the underlying zoning district. No beneficial purpose is served by the Planning Commission's excessively restrictive approach, which will only prevent reasonable re-leasing of existing buildings, with consequent damage to the value of the property as well as loss of jobs and tax revenues to the City.

c. Criteria for extension of vacancy period after which "pre-existing" rights are lost.

An equally important issue is the draft SMP's limitation on the amount of time that a pre-existing use may be ceased before any new use must comply with the SMP, as well as the similar limitation on the amount of time that a pre-existing structure may be vacant before the structure must be brought into compliance with the SMP.

The Planning Commission's proposal provides that, if a pre-existing use ceases, or a pre-existing structure is vacated, for more than 24 months, the "grandfathered" rights are lost and the structure and use thereof must comply with the current SMP. The proposal also provides that the City Council may grant an extension of time beyond the 24 months.

Unfortunately, the foregoing provisions do not adequately address current economic conditions nor the realities of commercial leasing and financing. During the current economic recession, it is quite possible that space in our clients' buildings will become vacant and will be impossible to re-lease within 24 months, causing our clients to need extensions of the 24 month period.

While the Planning Commission's proposal includes language indicating that the City Council shall consider special circumstances and economic impacts in ruling on requests for extensions, this language will not provide sufficient comfort for lenders and potential buyers to preserve the value of our clients' developments. Thus, sections 14.6.A.3 and 14.6.B.4 must be revised to provide for an automatic minimum 24-month extension where a property owner is actively attempting to find a new tenant for space within a pre-existing structure but has been unable to do so within the initial 24 month period following vacation. *See Proposed Language for §14.6.A.3 and §14.6.B.4.* Where an owner wishes to maintain a building and is trying to put it to economic use, which generates jobs and tax revenue for the City, we cannot see why the City would wish to prematurely cut short the useful life of the building.³

II. The City's SMP is legally defective.

a. Purpose and calculation of City's proposed buffers in levee areas.

The explicit purpose of the City's proposed buffers in levee areas is to provide space for the levees to be reconstructed at a gentler slope than currently exists, purportedly in order to achieve bank stability and allow planting of vegetation to improve habitat. *See SMP, § 7.7.C.*

³ In addition to the revisions described above, Exhibit D includes a few other "clean-up" changes designed to avoid undue burdens on operation and maintenance of existing development.

The SMP provides for a 125-foot buffer in levee areas to allow reconstruction of the levees at an “overall” slope of 2.5:1 (e.g., 2.5 feet horizontal to 1 foot vertical), which the City believes is the slope required to achieve bank stability and provide for a mid-slope vegetated bench. *Id.*⁴

b. The proposed buffers violate property owners’ constitutional rights in the context of the SMP’s treatment of preexisting uses and structures.

The City’s proposed buffer in levee areas, when combined with the SMP’s treatment of preexisting uses and structures, unquestionably violates the constitutional rights of property owners with existing developments lying within the proposed buffer.

As set forth in section I above, the provisions of section 14.6 of the SMP, as proposed by the Planning Commission, make it extremely difficult for the owner of an existing development within the buffer to retain “grandfathered” status. As fully explained in the comment letter submitted by Clyde Skeen of the James Campbell Co. LLC, the SMP’s provisions regarding preexisting uses and structures would greatly interfere with the continued use and operation of existing buildings like the Glacier Building that are located partially within the proposed buffer such that the use of the portion of the structure in the buffer (and the structure itself within the buffer) will become nonconforming. *See* Letter from Clyde Skeen to Tukwila City Council, April 17, 2009, attached as Exhibit F hereto. As Mr. Skeen explains, the provisions of the SMP regarding preexisting uses and structures are unacceptable in light of commercial realities and will have a very substantial negative impact on the value of the property. *Id.*

However, even if reconstruction of the levees would provide increased flood protection or other benefits if and when such reconstruction occurs, the SMP by its terms *does not require* reconstruction of the levees now, or at any time in the future, by any person or entity. The SMP clearly contemplates the reconstruction of the levees as a long term process for which the SMP will attempt to reserve space. When the pertinent government agency actually undertakes reconstruction of a particular levee, it is almost always necessary for the agency to obtain additional easement rights from the private property owner, because existing easements are generally only thirty feet wide. *See* 2006 King County Flood Hazard Management Plan (“KCFHMP”), pp. 79-80, copies attached as part of Exhibit G hereto.

The SMP’s buffer approach is clearly impermissible in context with the SMP’s treatment of existing developments. Essentially, the SMP substantially devalues existing development lying within the buffer during the (possibly quite lengthy) period of time prior to reconstruction of the levees (at which point the existing development will need to be removed to make way for the reconstruction, with payment of just compensation by the government agency undertaking the levee reconstruction), but the flood control benefits occur when the levee is actually reconstructed.

The effect is to deprive the property owner of substantial value for no legitimate reason. There is no need to eliminate the existing development prior to levee reconstruction and the

⁴ If less width is actually required to achieve the City’s desired levee profile at the time the levee is actually reconstructed, then the Director may reduce the buffer to the actual width required. *See* SMP, Table 3.

existing development will no longer exist after levee reconstruction. Indeed, the only conceivable motivation for this approach is to devalue the existing development within the buffer so that the government agency can reduce the cost of condemning the land or easement it needs for the levee reconstruction at the time such reconstruction occurs.

As such, the SMP violates the rights of property owners with existing developments lying within the proposed buffer to substantive due process under Washington law. A governmental action meets the requirements of substantive due process if the action (1) serves a legitimate public purpose, (2) is reasonably necessary to the achievement of that purpose, and (3) is not unduly oppressive upon a particular individual. *Viking Properties, Inc. v. Holm*, 155 Wn.2d 112, 131 (2005). The SMP violates all three prongs of this test. As discussed later in this letter, there are alternative buffer approaches that the City could take that would have less impact on existing improvements. Certainly, the SMP is unduly oppressive given, among other factors, the severity of the financial loss to the property owner and the fact that the flood control protection of the levees extends far beyond the properties adjacent to the levees.

For the same general reasons as discussed above, the SMP also effects a facial unconstitutional "taking" because it does not substantially advance a legitimate state interest. *Guimont v. Clarke*, 121 Wn.2d 586, 606 n. 8 (1993), *cert. denied*, 510 U.S. 1176 (1994). It also lacks the "nexus" and "rough proportionality" required under *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987) and *Dolan v. City of Tigard*, 512 U.S. 374 (1994).⁵

c. The proposed buffers are legally impermissible on numerous other bases.

In addition to the legal defect addressed above, the SMP's proposed buffers in levee areas are legally impermissible on a variety of other grounds.

i. The proposed buffers violate RCW 82.02.020.

1. The proposed buffers simply do not relate to the impacts of proposed development.

The questions of whether 2.5:1 is the appropriate slope for levee reconstruction and whether a 125 foot buffer is required to achieve that slope are addressed below. Before addressing these matters, however, it must be emphasized that the entire concept of imposing on riverside property owners the obligation to provide space for resloping the levees is legally impermissible.

Under Washington law, the City's proposed buffer is a "tax, fee or charge" on development for purposes of RCW 82.02.020. See *Isla Verde Int'l Holdings v. City of Camas*, 146 Wn.2d 740, 759 (2002) (30% open space set aside was "tax, fee or charge" on development), *Citizens Alliance for Property Rights v. Ron Sims*, 145 Wn. App. 649, 664 (2008), *review denied*, 203 P.3d 378 (2009) (maximum 50% clearing limit was "tax, fee, or charge" on development). RCW 82.02.020 requires the buffer be "reasonably necessary as a direct result of the proposed development." The City's buffer does not meet this test. As a starting point, development that

⁵ We also expect it would effect a taking under the "balancing test" articulated in *Guimont v. Clarke*, 121 Wn.2d at 604.

does not disturb the levee does not impact the stability of the levee. See Letter from Andrew Walker, P.E., and Katy Cottingham, P.E., of Golder Associates to GordonDerr LLP, April 16, 2009 ("Golder letter"), Exhibit H hereto.

However, even assuming that the proposed buffer could be related to impacts of proposed development on the rationale that the new development needs the protection provided by a stable levee, such a rationale is untenable in this case. The draft SMP only requires new development to be located outside the buffer; it does not require that reconstruction of the levee take place at the time of development, or indeed at any other time. Thus, it is quite possible that new development will occur with no change occurring to the levee.

Moreover, the City already requires development along the river to implement measures to ensure that the development is protected from the same flooding against which the levees are intended to provide protection. As described in the 2006 King County Flood Hazard Management Plan, "Flood protection facilities built to contain floodwaters, such as levees...are typically designed for a certain magnitude of flood event. . . Flood protection facility retrofit projects are typically designed for the 100-year flood." See KCFHMP, p. 19 (copy attached as part of Exhibit G hereto).

However, the City of Tukwila already has in place a comprehensive floodplain management ordinance. See Tukwila Municipal Code ("TMC") ch. 16.52, Floodplain Management (copy attached as Exhibit I). Under this ordinance, new construction and substantial improvement of any nonresidential structure shall either have the lowest floor elevated at least one foot above the "base flood elevation" or shall be floodproofed so that portions of the structure below one foot above the base flood level are impermeable to the passage of water. TMC 16.52.100.B.2. The "base flood" is equivalent to the 100-year flood. TMC 16.52.030.5.

The foregoing requirements of TMC ch. 16.52 do not apply where property has been removed, as regulatory matter, from the floodplain (e.g., "mapped out" of the floodplain) because the levees provide adequate protection. However, as noted above, the draft SMP does not actually require resloping of the levees; it only requires property owners to leave space for that to occur. Thus, during the period of time prior to reconstruction of a levee (likely a considerable period of time in many cases), an adjacent property owner who develops his property will need to implement the protective measures required by TMC ch. 16.52 – and still set aside the buffer land. Thus, the proposed buffer is completely unrelated to the impacts of the development, in violation of RCW 82.02.020.

2. The City's uniform buffers are not reasonably necessary as a direct result of the proposed development.

In addition, the proposed buffer also violates RCW 82.02.020 because a uniform 125-foot buffer in levee areas is not "reasonably necessary as a direct result of the proposed development" in the sense of being proportional to the impacts of development. In *Citizens Alliance*, the court struck down an ordinance limiting clearing to a maximum of 50%, depending on the size of the lot, reasoning that:

[The ordinance] imposes a uniform requirement for cleared area on each lot, unrelated to any evaluation of the demonstrated impact of proposed development. . . [I]t fails to relate the clearing limit to the nature and extent of the proposed development on the lot. . . [None of the ordinance's criteria] address the requirement that the clearing limits be impact specific, as the statute requires. Thus, the necessary proportionality that is required to fulfill the statutory exception is not satisfied.

Citizens Alliance, 145 Wn.App. at 668-669. Certainly, the required proportionality is lacking where, as here, the levees provide protection to a vast area beyond the properties that are immediately adjacent to the river. *See Golder Letter*, Exhibit H hereto. Yet the City proposes to put the entire burden of leaving space for levee reconstruction upon the riverside property owners.

Moreover, the City's proposed 125-foot buffer in levee areas is based on the rationale that an "overall slope of 2.5:1" is the maximum angle of a stable slope. *See SMP*, § 7.7.C. However, in determining this "overall slope," the City has considered not only the riverside levee slope itself, but also a flat "bench" in the middle of the levee that the City wishes to see incorporated in any levee reconstruction for the purpose of planting vegetation. This bench is irrelevant to the stability of the levee. *See Golder Letter*, Exhibit H hereto. The City's proposed levee slope, outside of the midslope bench, is 2:1. *Id.* Moreover, in the event of levee reconstruction, there are a number of alternatives that could be used that could achieve acceptable stability at slopes that are steeper than 2:1, thus requiring less land area. *Id.* For examples, floodwalls constitute an acceptable alternatives. *Id.*

The SMP appears to assert that the bench is necessary in order to allow for the planting of vegetation (for purposes of improving ecological functions) in accordance with Army Corps of Engineers requirements. *See SMP*, § 7.7.C; *see also City's Shoreline Inventory*, p. 6-5. However, this does not justify the City's uniform buffer approach. As a technical matter, vegetation can be planted on levees even absent a midslope bench. *See Golder Letter*, Exhibit H hereto. Moreover, many levees along the Green River in Tukwila are not certified by the Corps of Engineers and King County specifically rejects the Corps of Engineers' restrictive approach to the planting of vegetation on levees. *See KCFHMP*, App. E, pp. 1-2 (copies attached as part of Exhibit G hereto). In any event, it is possible to incorporate a midslope bench into alternative designs such as a floodwall, which would allow a narrower levee profile than the City's proposed profile even if a bench were desired. *See Golder Letter*, Exhibit H hereto.

Moreover, even if the City's proposed levee profile, including midslope bench, would allow for more or better vegetation than would otherwise be possible, the amount of vegetation allowed by the City's desired profile is not needed to address, in a proportionate manner, the impacts of development of particular riverside property. *See Letter from Scott Luchessa, M.S., of Environ to Jeff Weber*, April 20, 2009 ("Environ Letter"), Exhibit J hereto. Similarly, the amount of vegetation allowed by the City's desired profile is not needed to comply with the Department of Ecology's guidelines for shoreline master programs calling for "no net loss" of shoreline ecological functions. *Id.*

In addition, even if the City were correct that an “overall slope of 2.5:1” is required, a 125-foot buffer provides more room than is actually needed to achieve the City’s desired levee profile in many cases. The City’s 125-foot buffer includes land not just for a vegetated bench but also is designed to provide enough room to achieve a certain backslope inclination; however, depending on site specific elevations the amount of room required for the backslope will vary such that in many cases a buffer of less than 125 feet would be required. See Golder letter, Exhibit H hereto.

ii. For similar reasons, the proposed buffers violate property owners’ constitutional rights.

For the same general reasons discussed in the preceding subsection (i), the SMP’s proposed buffer in levee areas effects a taking; it clearly lacks the “nexus” and “rough proportionality” required under *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987) and *Dolan v. City of Tigard*, 512 U.S. 374 (1994).

Similarly, the City’s proposed buffer also violates riverside property owners’ right to substantive due process under Washington law. See *Viking Properties, Inc. v. Holm, infra*. As explained in the comment letter of Clyde Skeen, the increased amount of area that the proposed buffer would require to be set aside as compared with current regulations would substantially reduce the buildable area of the property with consequent negative impact on the economic viability of redevelopment.

A fundamental principle under Washington’s substantive due process doctrine is that the city may not place the burden of responding to general societal problems on the shoulders of a few individual property owners. *Guimont v. Clarke*, 121 Wn.2d at 610-11; *Robinson v. City of Seattle*, 119 Wn.2d 34, 55 (1992), *cert. denied*, 508 U.S. 1028 (1992). That is precisely what the draft SMP does. The levees provide protection to a vast area beyond the properties that are immediately adjacent to the river (see Golder Letter, Exhibit H hereto), yet the City proposes to put the entire burden of leaving space for levee reconstruction upon the riverside property owners.

Ultimately, as noted above, the City’s buffer approach appears to be a way of reducing government’s condemnation costs at the time the levees are reconstructed, which is impermissible.

iii. The proposed buffers are not needed to achieve “no net loss” under DOE guidelines and are not authorized under the Shoreline Management Act.

As noted above, the City’s proposed buffers are not needed to achieve “no net loss” of shoreline ecological functions under WAC ch. 173-26. See Environ Letter, Exhibit J hereto. Rather, the proposed buffers go much further and attempt to achieve restoration of such functions, which is not a permissible purpose for shoreline regulations of this type under the Shoreline Management Act (RCW ch. 90.58).

Finally, the SMP is not consistent with the City's comprehensive plan and the vegetation and landscaping provisions (SMP, § 9.10) are impermissible. We incorporate by reference the comments of other property owners on these points.

III. Requested Relief.

As discussed above, we request that the Council make the changes to Section 14.6 that are set forth in Exhibit D hereto.

In addition, for the foregoing reasons, we believe the proposed buffers based on setting aside the area required to reconstruct the levees are fundamentally impermissible. However, even if the City could set SMP buffers based on the area required for levee reconstruction projects, the City's proposed uniform 125-foot buffer for levee areas is still impermissible. As set forth above, before setting a buffer width for a particular property, the City should evaluate the site specific conditions (particularly including the existence of existing improvements and the elevation of the land behind the levee) and consider the availability of various alternative design solutions that could minimize the interference of the buffer with existing improvements.

We appreciate your consideration of these issues and will be available at the public hearing to answer any questions that you may have.

Very truly yours,

GORDONDERR LLP



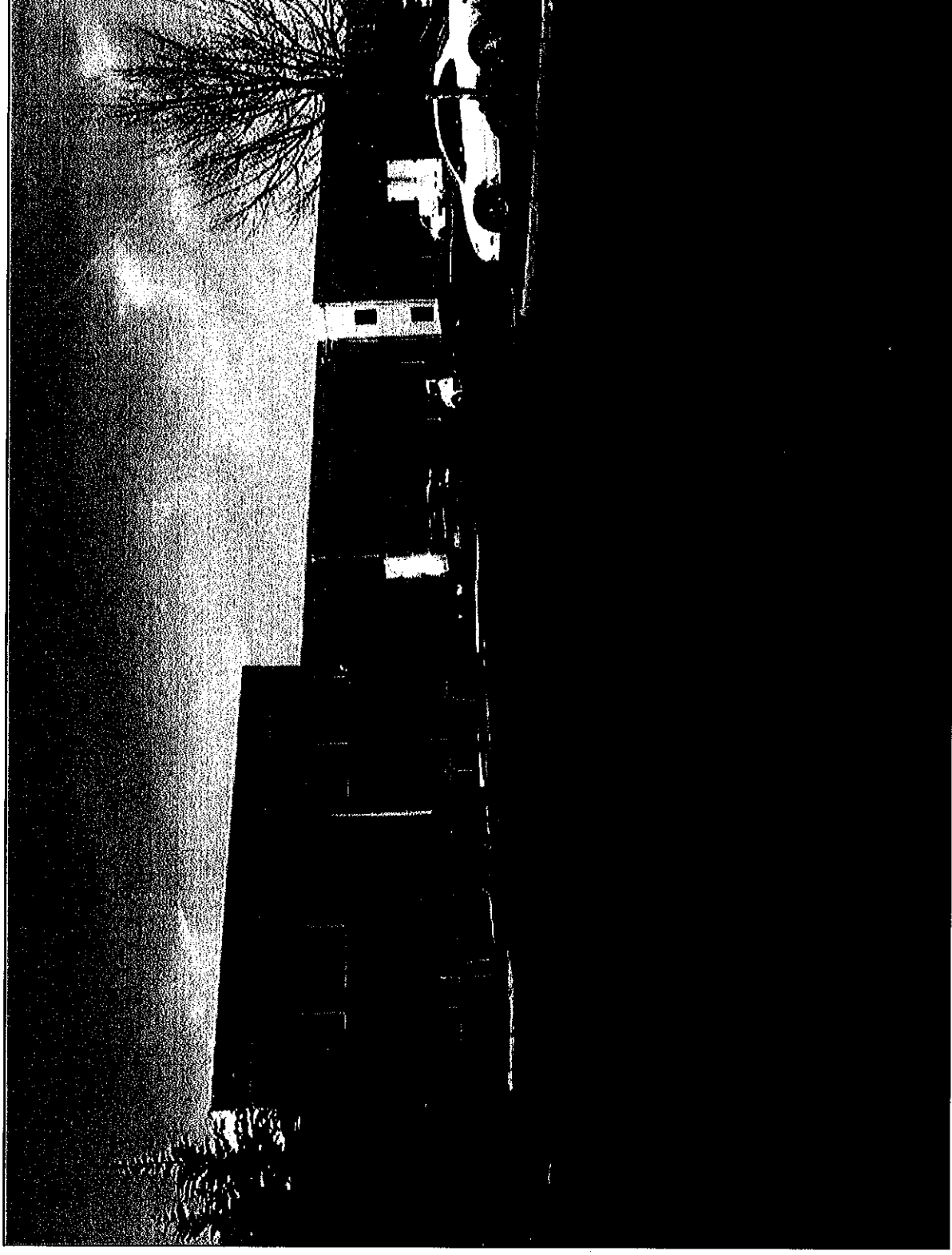
Jeff S. Weber

cc: John Wanamaker
Clients

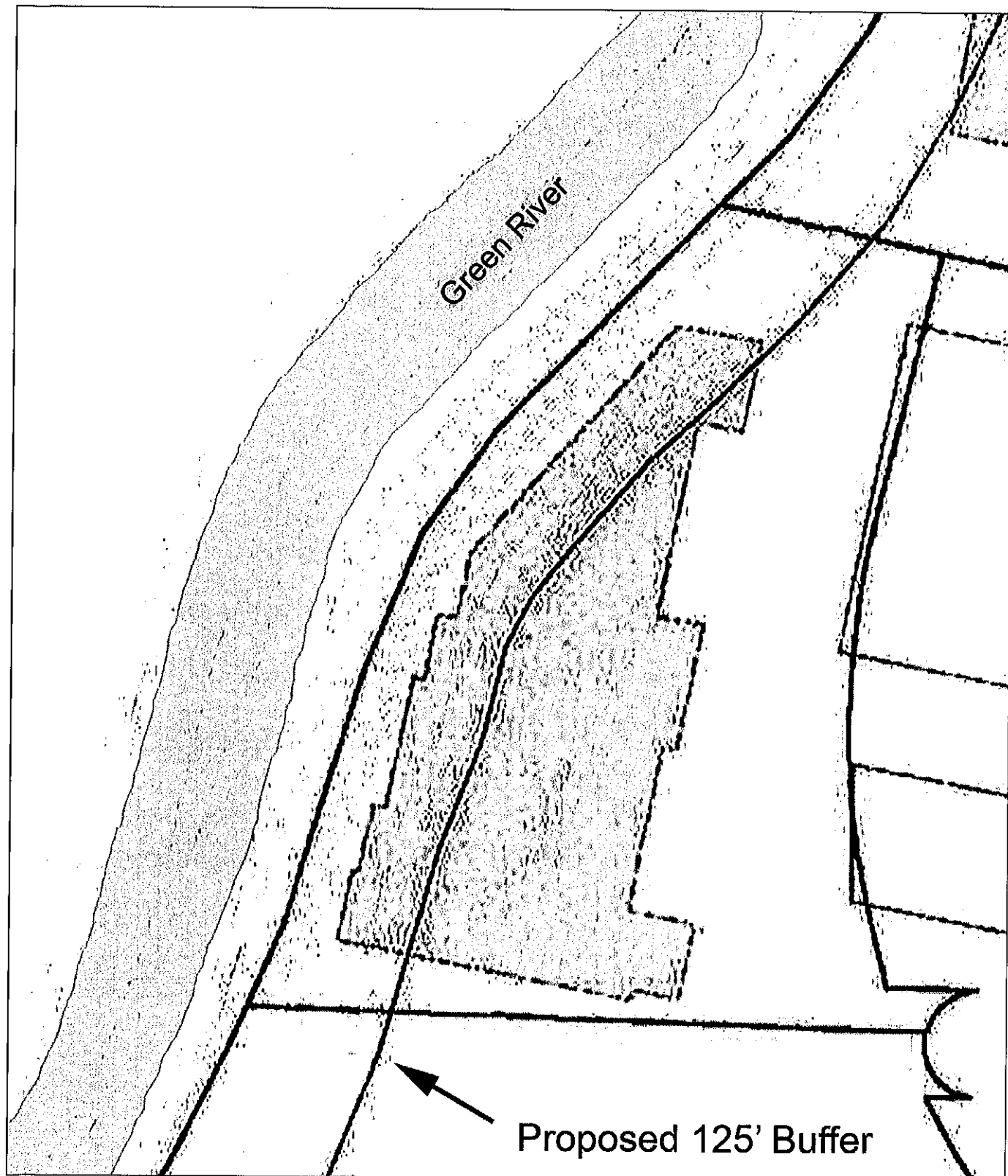
Exhibits:

- A: Photo of James Campbell Company LLC's Glacier Building
- B: Diagram Showing Buffer Impact on Glacier Building
- C: City of Tukwila Map "OHWM Buffer (Section 10)"
- D: Requested Language Changes to Section 14.6 of SMP
- E: TMC ch. 18.30
- F: Letter from Clyde Skeen to Tukwila City Council, April 17, 2009
- G: Excerpts from 2006 King County Flood Hazard Management Plan
- H: Letter from Andrew Walker, P.E., and Katy Cottingham, P.E., of Golder Associates to GordonDerr LLP, April 16, 2009, and resume of Mr. Walker
- I: TMC ch. 16.52
- J: Letter from Scott Luchessa, M.S., of Environ to Jeff Weber, April 20, 2009, and resume of Mr. Luchessa

The Glacier Building (James Campbell Co. LLC)



The Glacier Building
(James Campbell Co. LLC)
Tax Parcel No. 7888900120



14.6 Pre-Existing Development

A. Pre-existing Uses

Any preexisting lawful use of land that would not be allowed under the terms of this SMP may be continued as an allowed, legal pre-existing use, defined in TMC Chapter 18.06, or as hereafter amended, so long as that use remains lawful, subject to the following:

1. No such pre-existing use shall be enlarged, intensified, increased or extended to occupy a greater use of the land, structure or combination of the two, than was occupied at the effective date of adoption of this SMP unless TMC 18.66.120 applies; provided that, where a pre-existing use is located within a pre-existing structure that is located partially within and partially outside of a required buffer and the pre-existing use complies with the use regulations that apply in the applicable shoreline environment outside of the buffer area, the pre-existing use may be expanded within the structure, so long as the structure complies with section 14.6.B below;
2. No pre-existing use shall be moved or extended in whole or in part to any other portion of the lot or parcel occupied by such use at the effective date of adoption or amendment of this SMP; provided that, where a pre-existing use is located within a pre-existing structure that is located partially within and partially outside of a required buffer and the pre-existing use complies with the use regulations that apply in the applicable shoreline environment outside of the buffer area, the pre-existing use may be expanded within the structure, so long as the structure complies with section 14.6.B below;
3. If any such pre-existing use ceases for any reason for a period of more than 24 consecutive months (not including time required to reconstruct the structure following casualty), any subsequent use shall conform to the regulations specified by this SMP for the shoreline environment in which such use is located. Upon request of the owner, at any time prior to the end of the 24 consecutive months and upon reasonable cause shown, the City Council may grant an extension of time beyond the 24 consecutive months. The City Council shall consider special circumstances and economic effects ~~in~~ related to re-establishing the pre-existing use or devoting the space to another use as allowed in this section 14.6.A; provided that, a minimum 24-month extension shall automatically occur where a property owner is actively attempting to find a tenant for space left vacant by cessation of a pre-existing use within a pre-existing structure but has been unable to do so within 24 consecutive months of cessation of the pre-existing use;
4. If a change of use is proposed ~~to~~ from a use determined to be pre-existing by application of provisions in this SMP, the proposed new use must be a permitted use in the SMP or a use approved under a Conditional Use or Unclassified Use Permit process, provided that, where a pre-existing use is located within a pre-existing structure that is located partially within and partially outside of a required

buffer, the new use need not comply with the SMP's use regulations for the buffer area but rather must comply with the use regulations that apply in the applicable shoreline environment outside of the buffer area, so long as the structure complies with section 14.6.B below. For purposes of implementing this section, a change of use constitutes a change from one Permitted, Conditional or Unclassified Use category to another such use category as listed within the zoning code.

B. Pre-existing Structures

Where a lawful structure exists at the effective date of adoption of the SMP that could not be built under the terms of the SMP by reason of restrictions on height, buffers or other characteristics of the structure, it may be continued as an allowed, legal structure so long as the structure remains otherwise lawful subject to the following provisions:

1. No such structure may be enlarged or altered in such a way that increases its degree of nonconformity or increases its impacts to the functions and values of the shoreline environment. Ordinary maintenance and repair of and upgrades to a pre-existing structure is permitted, including but not limited to painting, roof repair and replacement, plumbing, wiring, mechanical equipment repair/replacement, repaving and weatherization. These and other alterations, additions or enlargements may be allowed as long as the work done does not extend further into any required buffer, increase the amount of impervious surface, or increase the impacts to the functions and values of the shoreline environment. Complete plans shall be required of all work contemplated under this section at the time of any required permit(s).
2. Should such structure be destroyed by any accidental means the structure may be reconstructed to its original dimensions and location on the lot. In the event that the property is redeveloped, such redevelopment must be in conformity with the provisions of this SMP.
3. Should such structure be moved for any reason or any distance whatsoever, it shall thereafter conform to the regulations of this SMP after it is moved.
4. When a pre-existing structure, or structure and premises in combination, is vacated or abandoned for 24 consecutive months (not including time required to reconstruct the structure following casualty), the structure, or structure and premises in combination, shall thereafter be required to be in conformance with the regulations of the SMP. Upon request of the owner, at any time prior to the end of the 24 consecutive months, and upon reasonable cause shown, the City Council may grant an extension of time beyond the 24 consecutive months. The City Council shall consider special circumstances and economics impacting the sale or lease of said structure; provided that, a minimum 24-month extension shall automatically occur where a property owner is actively attempting to re-lease vacant space within a pre-existing structure but has been unable to do so within 24 consecutive months of vacation.

5. Residential structures and uses located in any single-family or multiple-family residential zoning district and in existence at the time of adoption of this SMP shall not be deemed nonconforming in terms of height, use, or location provisions of this title. Such buildings may be rebuilt after a fire or other natural disaster to their original dimensions, location and height, but may not be changed except as provided in the pre-existing uses section of this chapter.
6. Single-family structures in single- or multiple family residential zone districts, which have legally pre-existing setbacks from the OHWM per the SMP buffer, shall be allowed to expand the ground floor only along the existing building line(s), so long as the existing distance from the nearest point of the structure to the OHWM is not reduced, and the square footage of new intrusion into the buffer does not exceed 50% of the square footage of the current intrusion.
7. Within the shoreline jurisdiction, existing structures that do not meet the requirements of the SMP may be remodeled, reconstructed or replaced, provided that:
 - a. The new construction is within the original dimensions and location on the lot;
 - b. The new construction does not further intrude into or adversely impact the required buffer;
 - c. The new construction does not threaten the public health, safety or welfare; and
 - d. The structure otherwise meets the requirements of the SMP.
8. A pre-existing-use, within a pre-existing structure, shall not be allowed to expand into any other portion of the structure; provided that, where a pre-existing use is located within a pre-existing structure that is located partially within and partially outside of a required buffer and the pre-existing use complies with the use regulations that apply in the applicable shoreline environment outside of the buffer area, the pre-existing use may be expanded within the structure.
9. Temporary intrusions into required buffer areas shall be permitted to facilitate work allowed under this section 14.6.B so long as the affected buffer area is thereafter restored to the condition existing immediately prior to such intrusion to the extent reasonably practicable.

C. Building Safety

1. Nothing in this SMP shall be deemed to prevent the strengthening or restoring to a safe condition of any pre-existing building or part thereof declared to be unsafe by order of any City official charged with protecting the public safety.
2. Alterations or expansion of a pre-existing use which are required by law or a public agency in order to comply with public health or safety regulations are the only alterations or expansions allowed, except as otherwise provided in sections 14.6.A and 14.6.B above.

D. Pre-existing Parking Lots

1. Nothing contained in this SMP shall be construed to require a change in any aspect of a structure or facility covered thereunder including, without limitation, parking lot layout, loading space requirements and curb-cuts, for any structure or facility which existed on the date of adoption of this SMP.
2. If a change of use takes place, or an addition is proposed, which requires an increase in the parking area by an increment less than 100%, the requirements of the SMP shall be complied with for the additional parking area.
3. If a change of use takes place, or an addition is proposed, which requires an increase in the parking area by an increment greater than 100%, the requirements of the SMP shall be complied with for the entire parking area.

E. Pre-existing Landscape Areas

1. Adoption of the vegetation protection and landscaping regulations contained in this SMP shall not be construed to require a change in the landscape improvements for any legal landscape area which existed on the date of adoption of this SMP, unless and until the property is redeveloped or alteration of the existing structure beyond the thresholds provided therein.
2. At such time as the property is redeveloped or the existing structure is altered beyond the thresholds provided herein and the associated premises does not comply with the vegetation protection and landscaping requirements of this SMP, a landscape plan which conforms to the requirements of this SMP shall be submitted to the Director for approval.

• <i>Other uses, incl. senior citizen housing</i>	See TMC Chapter 18.56, Off-street Parking & Loading Regulations
• <i>TOD housing</i>	1 per one-bedroom unit 2 per unit with two+ bedrooms
Performance Standards: Use, activity and operations within a structure or a site shall comply with (1) standards adopted by the Puget Sound Air Pollution Control Agency for odor, dust, smoke and other airborne pollutants, (2) TMC Chapter 8.22, "Noise", and, (3) adopted State and Federal standards for water quality and hazardous materials. In addition, all development subject to the requirements of the State Environmental Policy Act, RCW 43.21C, shall be evaluated to determine whether adverse environmental impacts have been adequately mitigated.	

(Ord. 2084 §2(part), 2005)

Chapter 18.30 COMMERCIAL/LIGHT INDUSTRIAL (C/LI) DISTRICT

Sections:

- 18.30.010 Purpose
- 18.30.020 Permitted Uses
- 18.30.030 Accessory Uses
- 18.30.040 Conditional Uses
- 18.30.050 Unclassified Uses
- 18.30.060 On-Site Hazardous Substances
- 18.30.070 Design Review
- 18.30.080 Basic Development Standards

18.30.010 Purpose

This district implements the Commercial/Light Industrial Comprehensive Plan designation. It is intended to provide for areas characterized by a mix of commercial, office, or light industrial uses. The standards are intended to promote viable and attractive commercial and industrial areas.

(Ord. 1758 §1(part), 1905)

18.30.020 Permitted Uses

The following uses are permitted outright within the Commercial Light Industrial District, subject to compliance with all other applicable requirements of the Tukwila Municipal Code.

1. Adult entertainment establishments are permitted, subject to the following location restrictions:

a. No adult entertainment establishment shall be allowed within the following distances from the following specified uses, areas or zones, whether such uses, areas or zones are located within or outside the City limits:

(1) In or within 1,000 feet of any LDR, MDR, HDR, MUO, O, NCC, RC, RCM or TUC zone districts or any other residentially zoned property;

(2) In or within 1/2 mile of:

(a) Public or private school with curricula equivalent to elementary, junior or senior high schools, or any facility owned or operated by such schools; and

(b) Care centers, preschools, nursery schools or other child care facilities;

(3) In or within 1,000 feet of:

(a) public park, trail, or public recreational facility; or

(b) church, temple, synagogue or chapel; or

(c) public library;

b. the distances specified in TMC 18.30.020.1.a shall be measured by following a straight line from the nearest point of the property parcel upon which the proposed use is to be located, to the nearest point of the parcel of property or land use district boundary line from which the proposed land use is to be separated;

c. No adult entertainment establishment shall be allowed to locate within 1,000 feet of an existing adult entertainment establishment. The distance specified in this section shall be measured by following a straight line between the nearest points of public entry into each establishment.

2. Animal veterinary, including associated temporary indoor boarding; access to an arterial required.

3. Automobile, recreational vehicles or travel trailer sales rooms and travel trailer or used car sales lots. No dismantling of cars or travel trailers or sale of used parts allowed.

4. Automotive services:

- a. gas, outside pumps allowed;
- b. washing;
- c. body and engine repair shops (enclosed

within a building).

5. Beauty or barber shops.

6. Bicycle repair shops.

7. Billiard or pool rooms.

8. Brew pubs.

9. Bus stations.

10. Cabinet shops or carpenters shops employing less than five people.

11. Commercial laundries.

12. Commercial parking, provided it is:

a. located within a structure having substantial ground floor retail or commercial activities and designed such that the pedestrian and commercial environments are not negatively impacted by the parking use, or

b. located at least 175 feet from adjacent arterial streets and behind a building that, combined with appropriate Type III landscaping, provides effective visual screening from adjacent streets.

13. Computer software development and similar uses.

14. Contractor storage yards.

15. Convention facilities.

16. Convalescent and nursing homes for not more than 12 patients.

17. Day care centers.

18. Financial:

- a. banking;
- b. mortgage;
- c. other services.

19. Fix-it, radio or television repair shops/ rental shops.

20. Fraternal organizations.

21. Frozen food lockers for individual or family use.

22. Greenhouses or nurseries (commercial).

23. Heavy equipment repair and salvage.

24. Hotels.

25. Industries involved with etching, film processing, lithography, printing, and publishing.

26. Internet data/telecommunication centers

27. Laundries:

a. self-serve;

b. dry cleaning;

c. tailor, dyeing.

28. Libraries, museums or art galleries (public).

29. Manufacturing, processing and/or assembling of electrical or mechanical equipment, vehicles and machines including, but not limited to, heavy and light machinery, tools, airplanes, boats or other transportation vehicles and equipment.

30. Manufacturing, processing and/or packaging of foods, including but not limited to, baked goods, beverages (except fermenting and distilling), candy, canned or preserved foods, dairy products and by-products, frozen foods, instant foods and meats (no slaughtering).

31. Manufacturing, processing and/or packaging pharmaceuticals and related products, such as cosmetics and drugs.

32. Manufacturing, processing, and/or packaging previously prepared materials including, but not limited to, bags, brooms, brushes, canvas, clay, clothing, fur, furniture, glass, ink, paint, paper, plastics, rubber, tile, and wood.

33. Manufacturing, processing, assembling, packaging and/or repairing electronic, mechanical or precision instruments such as medical and dental equipment, photographic goods, measurement and control devices, and recording equipment.

34. Medical and dental laboratories.

35. Mortician and funeral homes.

36. Motels.

37. Offices, including:

- a. medical;
- b. dental;
- c. government; excluding fire and police
- d. stations;
- e. professional;
- f. administrative;
- g. business, such as travel, real estate;
- h. commercial.

38. Outpatient, inpatient, and emergency medical and dental.

39. Parks, trails, picnic areas and playgrounds (public) but not including amusement parks, golf courses, or commercial recreation.

40. Pawnbrokers.

41. Planned shopping center (mall).

42. Plumbing shops (no tin work or outside storage).

43. Railroad tracks, (including lead, spur, loading or storage).

44. Recreation facilities (commercial - indoor) - athletic or health clubs.

45. Recreation facilities (commercial - indoor), including bowling alleys, skating rinks, shooting ranges.

46. Rental of vehicles not requiring a commercial driver's license (including automobiles, sport utility vehicles, mini-vans, recreational vehicles, cargo vans and certain trucks).

47. Rental of commercial trucks and fleet rentals requiring a commercial driver's license.

48. Restaurants, including:

- a. drive-through;
- b. sit down;
- c. cocktail lounges in conjunction with a

restaurant.

49. Retail sales of furniture, appliances, automobile parts and accessories, liquor, lumber/building materials, lawn and garden supplies, farm supplies.

50. Retail sales of health and beauty aids, prescription drugs, food, hardware, notions, crafts and craft supplies, housewares, consumer electronics, photo equipment and film processing, books, magazines, stationery, clothing, shoes, flowers, plants, pets, jewelry, gifts, recreation equipment and sporting goods, and similar items.

51. Sales and rental of heavy machinery and equipment subject to landscaping requirements of the Landscape, Recreation, Recycling/Solid Waste Space Requirements chapter of this title.

52. Salvage and wrecking operations that are entirely enclosed within a building.

53. Schools and studios for education or self improvement.

54. Self-storage facilities.

55. Storage (outdoor) of materials allowed to be manufactured or handled within facilities conforming to uses under this chapter; and screened pursuant to the Landscape, Recreation, Recycling/Solid Waste Space Requirements chapter of this title.

56. Studios - art, photography, music, voice and dance.

57. Taverns, nightclubs.

58. Telephone exchanges.

59. Theaters, excluding "adult entertainment establishments", as defined by this Code.

60. Tow truck operations, subject to all additional State and local regulations.

61. Truck terminals.

62. Warehouse storage and/or wholesale distribution facilities.

63. Other uses not specifically listed in this Title, which the Director determines to be:

- a. similar in nature to and compatible with other uses permitted outright within this district;
- b. consistent with the stated purpose of this district; and
- c. consistent with the policies of the

Tukwila Comprehensive Plan.

*(Ord. 2021 §5, 2003; Ord. 1986 §10, 2001;
Ord. 1974 §6, 2001; Ord. 1971 §13, 2001;
Ord. 1830 §23, 1998; Ord. 1814, §2, 1997;
Ord. 1758 §1(part), 1995)*

18.30.030 Accessory Uses

The following uses and structures customarily appurtenant to a permitted use, and clearly incidental to such permitted use, are allowed within the Commercial Light Industrial District.

1. Cargo container; two may be allowed per lot with approval as a Type 2 decision; criteria are listed at TMC 18.50.060.

2. Dormitory as an accessory use to other uses that are otherwise permitted or approved conditional uses such as churches, universities, colleges or schools.

3. Parking areas.

4. Recreational area and facilities for employees.

5. Residences for security or maintenance personnel.

*(Ord. 1989 §8, 2002; Ord. 1976 §52, 2001;
Ord. 1758 §1(part), 1995)*

18.30.040 Conditional Uses

The following uses may be allowed within the Commercial Light Industrial District, subject to the requirements, procedures, and conditions established by the Conditional Use Permits chapter of this title.

1. Amusement parks.

2. Animals shelters and kennels, subject to all additional State and local regulations (less than 4 cats or dogs does not need a permit).

3. Cemeteries and crematories.

4. Churches and community center buildings.

5. Colleges and universities.

6. Convalescent and nursing homes for more than 12 patients.

7. Drive-in theaters.

8. Electrical substations - distribution.

9. Fire and police stations.

10. Hospitals, sanitariums, or similar institutions.

11. Manufacturing, processing and/or assembling chemicals, light metals, plastics, solvents, soaps, wood, coal, glass, enamels, textiles, fabrics, plaster, agricultural products or animal products (no rendering or slaughtering).

12. Manufacturing, processing and/or assembling of previously manufactured metals, such as iron and steel fabrication; steel production by electric arc melting, argon oxygen refining, and consumable electrode melting; and similar heavy industrial uses.

13. Manufacturing, processing and/or assembling previously prepared metals including, but not limited to, stamping, dyeing, shearing or punching of metal, engraving, galvanizing and hand-forging.

14. Park-and-ride lots.

15. Radio, television, microwave, or observation stations and towers.

16. Recreation facilities (commercial -outdoor), including golf courses, golf driving ranges, fairgrounds, animal race tracks, sports fields.

17. Recreation facilities (public) including, but not limited to, sports fields, community centers, and golf courses.

18. Rock crushing, asphalt or concrete batching or mixing, stone cutting, brick manufacture, marble work, and the assembly of products from the above materials.

(Ord. 2135 §13, 2006; Ord. 1865 §36, 1999;
Ord. 1830 §24, 1998; Ord. 1758 §1(part), 1995)

18.30.050 Unclassified Uses

The following uses may be allowed within the Commercial Light Industrial District, subject to the requirements, procedures and conditions established by TMC Chapter 18.66, Unclassified Use Permits.

1. Airports, landing fields and heliports (except emergency sites).

2. Cement manufacturing.

3. Essential public facilities, except those uses listed separately in any of the districts established by this title.

4. Hydroelectric and private utility power generating plants.

5. Landfills and excavations which the responsible official, acting pursuant to the State Environmental Policy Act, determines are significant environmental actions.

6. Removal and processing of sand, gravel, rock, peat, black soil, and other natural deposits together with associated structures.

7. Mass transit facilities.

(Ord. 1991 §5, 2002; Ord. 1976 §53, 2001;
Ord. 1758 §1(part), 1995)

18.30.060 On-Site Hazardous Substances

No on-site hazardous substance processing and handling, or hazardous waste treatment and storage facilities shall be permitted, unless clearly incidental and secondary to a permitted use. On-site hazardous waste treatment and storage facilities shall be subject to the State siting criteria (RCW 70.105).

(See TMC Chapter 21.08.)

(Ord. 1758 §1(part), 1995)

18.30.070 Design Review

Design review is required for new developments within 300 feet of residential districts or within 200 feet of the Green/Duwamish River, or for developments larger than 1,500 square feet. Commercial structures between 1,500 and 10,000 square feet will be reviewed administratively. Design review is also required for certain exterior repairs, reconstructions, alterations or improvements to buildings over 10,000 square feet.

(Ord. 2005 §10, 2002; Ord. 1758 §1(part), 1995)

18.30.080 Basic Development Standards

Development within the Commercial Light Industrial District shall conform to the following listed and referenced standards:

C/LI BASIC DEVELOPMENT STANDARDS

Setbacks to yards, minimum:	
• Front	25 feet
• Second front	12.5 feet
• Second front, if any portion of the yard is within 50 feet of LDR, MDR, HDR	15 feet
• Sides	5 feet
• Sides, if any portion of the yard is within 50 feet of LDR, MDR, HDR	
- 1st floor	15 feet
- 2nd floor	20 feet
- 3rd floor	30 feet
• Rear	5 feet
• Rear, if any portion of the yard is within 50 feet of LDR, MDR, HDR	
- 1st floor	15 feet
- 2nd floor	20 feet
- 3rd floor	30 feet
Height, maximum	4 stories or 45 feet
Landscape requirements (minimum):	See Landscape, Recreation, Recycling/ Solid Waste Space requirements chapter for further requirements
• Fronts	12.5 feet
• Fronts, if any portion of the yard is within 50 feet of LDR, MDR, HDR	15 feet
• Sides	5 feet
• Sides, if any portion of the yard is within 50 feet of LDR, MDR, HDR	15 feet
• Rear	None
• Rear, if any portion of the yard is within 50 feet of LDR, MDR, HDR	15 feet
Off street parking	
• Warehousing	1 per 2,000 sq. ft. usable floor area min.
• Office	3 per 1000 sq. ft. usable floor area min.
• Retail	2.5 per 1000 sq. ft. usable floor area min.
• Manufacturing	1 per 1,000 sq. ft. usable floor area min.
• Other Uses	See TMC Chapter 18.56, Off-street Parking/Loading Regulations
Performance Standards: Use, activity and operations within a structure or a site shall comply with (1) standards adopted by the Puget Sound Air Pollution Control Agency for odor, dust, smoke and other airborne pollutants, (2) TMC Chapter 8.22, "Noise", and, (3) adopted State and Federal standards for water quality and hazardous materials. In addition, all development subject to the requirements of the State Environmental Policy Act, RCW 43.21C, shall be evaluated to determine whether adverse environmental impacts have been adequately mitigated.	

(Ord. 1872 §8, 1999; Ord. 1758 §1(part), 1995)

JAMES CAMPBELL COMPANY LLC

April 17, 2009

Members of the Tukwila City Council
6200 Southcenter Blvd.
Tukwila, WA 98188

Dear City Council Members:

Re: Comments on City Tukwila Shoreline Master Program Update

I am the Vice President, Regional Manager for the James Campbell Co. LLC, which owns a number of parcels in the City of Tukwila, including tax parcels 7888900152, 7888900162, and 7888900120, all of which are adjacent to the Green River. These properties are developed with existing commercial/light industrial buildings occupied by a variety of tenants.

I am writing concerning the draft Shoreline Master Program ("SMP") update that is before you for review. As I am based in San Francisco, it may not be possible for me to attend the hearing on April 20, but I would like to add to the comments submitted by our attorney and impress upon you the very negative effect that the SMP, as proposed by the Planning Commission, will have on the value of the James Campbell Company's properties.

I have 25 years of experience in the real estate industry and am the asset manager for a portfolio of properties throughout the United States covering six million square feet at a total value of \$480 million. I am intimately familiar with how properties are valued by buyers (particularly institutional investors) and lenders and with the types of factors that can and do affect property values. James Campbell Company is the successor entity to a 107 year old investment trust with an investment portfolio devoted exclusively to commercial real estate with a significant component devoted to development. James Campbell Company has owned property in Tukwila for 16 years. I am also personally familiar with the James Campbell Company's properties in the City of Tukwila and with the uses and characteristics of the general area in which they are located.

As you know, the SMP proposes a 125-foot riverside buffer along the Green River in the location of our properties. As evidenced by the materials already submitted to the City, portions of many of our buildings would be located within the proposed buffer. A particularly good example is the Glacier Building (tax parcel 788900120). As shown by the materials already submitted by our attorney, the buffer would run through the existing building along its entire western side.

If and when this property is redeveloped, the proposed buffer unquestionably would have a substantial negative effect on the value of this property, since the new buffer vastly increases the amount of area that must be set aside as compared to current regulations, and thus would substantially reduce the buildable area of the property.¹ This property is already relatively constrained due to its size and configuration. Given the need to comply with other development standards and provide adequate circulation and parking, the loss of buildable area represented by the new buffer could easily result in a permitted building envelope that would be economically untenable for the types of redevelopment scenarios that are reasonably foreseeable in the area in which the property is located.

However, the foregoing only begins to address the negative impact of the proposed buffer on the value of our property. In the portion of Tukwila where this property is located, the type of commercial/light industrial building that already occupies this property is likely to be the highest and best use for a long time to come. Redevelopment is a distant prospect. The primary value of this property lies in the continuation of the use of the existing building.

Unfortunately, the proposed SMP's treatment of existing uses and structures would greatly interfere with the continued use and operation of the Glacier Building and others in the same situation. The commercial/light industrial uses to which buildings like this are devoted are not allowed in the buffer, so use of the portion of the building in the buffer would become nonconforming (and the structure itself would become nonconforming within the buffer area as well).

In my experience, in any situation in which the property is not being held for immediate redevelopment, but rather for the income generated by existing development, regulations that make that existing development nonconforming automatically have some negative effect on the value of the property due to the uncertainty created by the nonconforming status. Investors, buyers and lenders do not like the uncertainty created by nonconforming status. At a minimum, it becomes necessary to evaluate the conditions under which the existing uses/structure may be continued, maintained, rebuilt, etc., and to evaluate the risks posed by the regulations on that score. For this reason, there is almost always some discount in value due to nonconforming status per se.

Far more important, however, as a substantive matter the draft SMP's regulations regarding nonconforming uses and structures (or "pre-existing" uses and structures, as the City calls them) are extremely unfavorable to the continued operation of a building like the Glacier

¹ It should be noted that, given the characteristics of the river and the presence of the levees, this property is unsuited for the "water dependent" commercial and industrial developments that are allowed in the buffer area.

Building on reasonable commercial conditions, and will have a very substantial negative impact on the value of the property.

While the draft SMP allows a nonconforming use to continue, if the use ceases for two years the "grandfathered" status is lost (though an extension of this time can be sought). In this situation, from the standpoint of property value, an absolutely crucial issue is the amount of flexibility the owner has in finding a new tenant for vacated space within the prescribed period of time. Unfortunately, the draft SMP gives the owner little flexibility. As set forth in our attorney's comments, the draft SMP construes use categories very narrowly, so an owner could retain nonconforming status only by finding a replacement tenant whose business was virtually the same as the vacating tenant's, within very narrow limits. This will vastly increase the difficulty of timely finding a replacement tenant, particularly in the current economy.

Similarly, the draft SMP would not allow any expansion of a nonconforming use, so an owner would not be able to retain nonconforming status by allowing a tenant in adjacent space (that was also partially within the buffer) to expand into the vacated space. Not only would this greatly increase the difficulty of finding a replacement tenant (since expansion by existing tenants is a very common way of filling space), but it could also result in the owner losing the tenant who wishes to expand but cannot do so.

Simply put, in my experience these types of restrictions are inconsistent with reasonable commercial conditions for operation of an existing commercial/light industrial building. Regardless of the time allowed by the SMP to refill space that becomes vacant before "grandfathering" is lost, these provisions will create substantial delays in the re-leasing of space such that the building will lose substantial value even if nonconforming status is ultimately retained.

Moreover, there remains a substantial risk, particularly in this economy, that re-leasing of vacated space in accordance with these provisions will not occur in time to retain nonconforming status. This would effectively destroy the value of the entire vacated space. In the case of the Glacier building, the proposed buffer encroaches on the entire western side of the building. In a building of this type and configuration, one cannot simply declare space on one side of the building unusable and still effectively lease the rest of the space.

More important, under the nonconforming structure provisions of the SMP, the structure itself within the buffer would lose its "grandfathering" and need to come into compliance with the SMP if left vacant for two years. From a practical and economic perspective, it would be impossible to remove the portion of the building in the buffer without effectively destroying the entire value of the building.

In addition, the two year period for re-leasing before "grandfathered" status is lost is too short given current economic realities. During the current economic recession, it is entirely possible that substantial space in this building will become vacant and will be impossible to re-lease within twenty-four months, particularly under the provisions described above. Thus, we could very likely need to seek an extension of the two-year period from the City Council.

While the draft SMP includes language indicating that the City Council shall consider special circumstances and economic impacts in ruling on requests for extensions, with due respect to the Council this language is too discretionary to provide sufficient comfort for lenders and potential buyers. From a commercial perspective, for an extension provision to be taken seriously there must be a right to an extension as long as the owner is actively trying to re-lease the space.

Perhaps the most important point of all, however, is that the negative effect on the value of the Glacier Building (and others like it) due to the SMP's provisions regarding nonconforming uses and structures does not ultimately depend on the owner actually experiencing revenue loss due to delays in re-leasing space or the owner actually losing nonconforming status. The James Campbell Company is an institutional investor and property of this sort is typically purchased, owned and financed by similarly sophisticated entities who take the risk of all sorts of future conditions and occurrences into account in valuing property and discount the property value accordingly. The value of such property is based on its projected income stream, and factors that put that income stream at risk cannot help but decrease the value of the property. In the most extreme situation, if investors believe the re-leasing of the property is uncertain enough, the value of the property essentially becomes the value of the existing leases.

In my experience, based on the commercial realities of real estate investment in properties of this sort, the SMP's buffer provisions combined with its onerous treatment of nonconforming uses and structures creates an unacceptable risk of interference with the profitable continuing use of our existing riverside developments including the Glacier Building. Particularly given current economic conditions which are highly unfavorable for sellers of commercial real estate, the SMP stands to cause an immediate and significant discount in the value of such property.

Finally, in my experience with real estate investment nationwide, I am quite familiar with issues of nonconformance. Sophisticated investors understand that regulations can become stricter over time. However, in my experience, when jurisdictions propose new regulations that are as restrictive as the buffer provisions of the draft SMP, they are typically

Members of the Tukwila City Council
April 17, 2009
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far more careful to protect existing developments in a commercially reasonable manner than the City has been in this case. Certainly, when the James Campbell Company purchased its properties and made a commitment to the economic health of the City of Tukwila, we would not reasonably have expected the City to put our investment at risk in this way. I respectfully request that you make the changes to the draft SMP recommended by our attorney in order to address the issues discussed herein. Thank you for your consideration.

Very truly yours,

A handwritten signature in black ink, appearing to read "Clyde Skeen", with a long horizontal flourish extending to the right.

Clyde Skeen
Vice President
Regional Manager

2006 KING COUNTY FLOOD HAZARD MANAGEMENT PLAN

King County, Washington

Final, January 2007

Prepared for



King County

Department of Natural Resources and Parks
Water and Land Resources Division
Regional Services Section

River and Floodplain Management Unit

King Street Center, KSC-NR-0600
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855

206-296-6519 TTY Relay: 711

<http://dnr.metrokc.gov/wlr/flood/fhrpupdate.htm>

File Name: G:\RP\FHRP Update\April 05 and Beyond\May Executive Proposed Plan

Alternate Formats Available
206-296-6519 TTY Relay: 711

Policy PROJ-4: Management of King County Properties

King County shall manage its public lands and easements within flood hazard areas in accordance with the policies in this Plan. Public access to flood hazard management properties may be allowed on a case-by-case basis after evaluating overall public safety issues to determine the appropriate level of public access.

2.3.3 Flood Protection Standards and Design

Flood protection facilities built to contain floodwaters, such as levees, or to provide erosion protection, such as revetments, are typically designed for a certain magnitude of flood event. Events that exceed this design level can overtop or otherwise damage the facility. Flood protection facility retrofit projects are typically designed for the 100-year flood, although in some cases, such as when insufficient land is available, that standard cannot be met. Future conditions information should be incorporated into project designs when such information is available. In addition, flood protection facility design must consider the facility's impact on fish and wildlife habitat, wetlands, open space and recreation resources, and long-term maintenance costs.

Policy PROJ-5: Flood Protection Standard

New flood hazard management projects, whether protecting new or existing development, should seek to provide protection from the 100-year, future conditions flood, plus a margin of safety. When new projects are being built to protect existing development, lesser protection may be provided where 100-year protection is not practical. Existing flood hazard management projects protecting existing developments should be maintained at their current level of protection unless the alternatives evaluation shows that a different level of protection is warranted.

Policy PROJ-6: Flood Protection Facility Design and Maintenance Objectives

King County should construct new flood protection facilities and maintain, repair or replace existing flood protection facilities in such a way as to:

- a. Require minimal maintenance over the long term,
- b. Ensure that flood or channel migration risks are not transferred to other sites,
- c. Protect or enhance aquatic, riparian and other critical habitats, and
- d. Protect or enhance multiple beneficial uses of flood hazard areas.

Policy PROJ-7: Flood Protection Facilities within Critical Areas Ordinance Aquatic Areas and Aquatic Area Buffers

Wherever possible, King County should relocate existing flood protection facilities farther from the river edge and associated buffers to increase flood conveyance and allow natural river processes to occur.

2.3.4 Cultural Resources and Historic Preservation in the Flood Hazard Management Corridor

Since the earliest period of human history, humans have occupied river corridors because of their value for food, water, transportation and fertile soils. Human occupation in and along King County's rivers, especially by Native American Tribes, has resulted in historically significant artifacts, information and other culturally sensitive aspects of their presence that are in need of protection and preservation.

Flood Protection facility removal projects will commonly be designed in coordination with other flood hazard management activities as part of an overall strategy for a river segment. Design considerations include an evaluation of the existing condition of the flood protection facility, comparison of flood risks with and without the facility, and analysis of alternatives for mitigating those risks. At a minimum, flood protection facility removal projects involve excavation of fill and bank armoring material and stabilization of the project site using native vegetation. Further, restoration of the site for fish and wildlife or other flood-compatible uses can be coordinated with appropriate departments and agencies. The benefits typically include increased conveyance capacity, lower flood elevations and velocities, reduced flood risks, reconnection of the river with its floodplain, reintroduction of natural river processes, lower maintenance costs, and improved habitat for fish and wildlife.

New or Expanded Levees and Revetments

New levee and revetment construction is limited due to the cost, regulatory constraints, potential for exacerbating flood risks on neighboring properties, and likely adverse impact on habitat and other natural resource values. However, it remains a tool that may be employed in certain situations of high flood risk and limited alternatives. In these instances, the design of the flood protection facility should be based on bioengineered bank stabilization techniques, include slope angles that are stable for the materials used, and to the maximum extent practicable, provide some level of set back from the existing channel. If designed as a setback project, the construction may be able to occur entirely out of the wetted area of the channel.

Raising or widening a levee or extending a levee or revetment lengthwise has many of the same drawbacks and challenges as new construction. It creates additional limits on conveyance and storage of flood flows, reduces natural river processes, impairs habitat conditions, and undergoes rigorous permit requirements. New or expanded levees and revetments are generally inconsistent with salmon habitat recovery plans. There are limited applications where these activities may be warranted. Widening a levee can improve its strength and resilience or improve access for vehicles performing inspection and maintenance. Increasing levee height can also increase the level of protection. Like levee slope improvements, height and width increases almost always require landward expansion of the flood protection facility footprint and additional right-of-way.

Floodplain and Channel Modifications

Reconnection or creation of overbank conveyance channels may require excavation at the inlet or along the channel in order to successfully convey flows at the desired flood threshold. In some cases, opening up access at the upstream end may be accomplished in concert with a levee or revetment removal project.

Instream modification could involve excavation of material encroaching on the channel or installation of features to improve flow patterns and channel complexity. In areas of regular and predictable sedimentation, construction of an off-channel sediment basin may be a valuable alternative to gravel removal and the environmental degradation that can accompany it. The basin would be sized and located to capture materials that would otherwise deposit in the channel and would need to be maintained on a regular schedule in order to preserve its sediment-trapping functions. Alternatively, large woody debris that historically was deposited naturally in the river may need to be installed where volumes of wood are lacking.

4.4.4 Easements

The River and Floodplain Management Program has over 1,000 river protection easements, which have been acquired for flood protection facility construction and maintenance. River protection easements typically coincide with flood protection facility locations; however numerous easements exist in locations

where facilities were never constructed. River Protection Easements grant King County access across private property for flood protection facility maintenance and management purposes and for channel monitoring surveys.

The rights granted through river protection easements are variable, but most grant King County rights to a strip of land 30 feet wide running parallel to the river along the top to the riverbank. This arbitrary width is generally sufficient for routine maintenance and minor repair work, but is seldom sufficient for the reconstruction of flood protection facilities in a manner consistent with current standards and practices. In addition, the 30-foot width does not always connect to legal access routes to the riverbank. Easements for reconstruction purposes must provide sufficient room for construction access benches, flood protection facility setbacks, biotechnical bank stabilization features, and riparian vegetation. In addition, property owners have encroached upon many of the easement areas with temporary or permanent improvements. These features hinder routine inspection and emergency vehicle access and can increase the cost of repair and reconstruction. Figure 4-11 illustrates how current easements are not sufficient to meet slope and levee access design needs for flood protection facility repairs.

Another shortcoming of most of the existing easements is the lack of explicit language allowing King County to establish native plant communities along the face of flood protection facilities. While establishment of such communities has become a standard permit requirement for virtually all types of flood protection facility repair and retrofit projects, there is little King County can do to prevent property owners or other parties from cutting or removing the vegetation that is integral to the project.

New River Protection Easement language has been developed that addresses the position of the easement relative to the river channel, necessary easement widths, and the updated rights and authorities granted to King County through the easement. This remedy will only apply to newly acquired easement rights. For most existing easements, only the acquisition of a new or revised easement will address these concerns. King County should pursue new or revised easements on a case-by case basis, through negotiations with affected property owners, wherever King County intends to perform major maintenance or rehabilitation of older levees and existing easements are inadequate for the project.

4.4.5 Inventory, Inspection, Assessment and Monitoring

King County's inventory of levees and revetments is currently a listing of flood protection facility information that only identifies flood protection facility locations and includes minimal information about the characteristics of each facility. A partially complete but detailed easement database has also been developed. The current inventory does not contain information on monitoring, inspection, follow-up assessments, or maintenance, nor does it contain enough detailed information about the flood protection facilities' condition, flood risks, or potential actions that can be taken to make them more compatible with salmon habitat recovery plans.

Flood protection facility inspections are typically conducted during summer low-flow periods or immediately following major flood events to identify and characterize damage and potential risks. Flood protection facility inspections are used to identify and characterize damage and potential problems, while condition assessment utilizes inspection information to identify the condition of the facility and any potential risks associated with its current condition. Condition assessment following a flood protection facility inspection may include gathering data to evaluate the facility's condition. Except during federally declared disasters, when FEMA provides a uniform format for quantifying damage, flood protection facility inspection and assessment data collection and storage methods are not standardized. In addition, due to the large number of flood protection facilities and competing priorities for flood hazard management resources, regular inspections have not been conducted for a substantial part of King County's flood protection infrastructure.

APPENDIX E

KING COUNTY FLOOD PROTECTION FACILITIES

This appendix contains a list of the revetments and levees managed by King County. In addition to providing information on the location, type and length of each flood protection facility, this appendix provides the status of each facility with respect to its eligibility for federal flood damage repair funding. Eligibility for federal funding to repair flood damages varies with the type and condition of the flood protection facility in question. While federal programs do exist that can fund improvements to revetments and levees on a case by case basis, the primary means through which flood protection facility flood damages are repaired using federal funds are the Public Assistance Program administered by the FEMA and the Rehabilitation and Inspection Program managed by the U.S. Army Corps of Engineers.

Federal Funding for Repairs to Revetments and Other Flood Protection Facilities – The Public Assistance Program

The Public Assistance Program, authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, is administered by FEMA. This program is intended to help communities recover from damages caused by federally declared disasters. The act includes provisions that allow local governments to receive funding for up to 75% of the costs to repair damaged infrastructure that is not eligible for assistance through other federal programs. Since levees are eligible for assistance under the federal Rehabilitation and Inspection Program managed by the Army Corps of Engineers, they are not eligible for assistance through the Public Assistance Program..

The Public Assistance Program can, however, play a vital role in the repair of revetments and other flood protection related facilities such as pump stations, drainage systems and sedimentation ponds. While there are no specific standards that a revetment must meet to be eligible for this program, funds are allocated only for repairs to damages caused by the federally declared disaster. Damages caused by non federally declared flood disasters are not eligible through the Public Assistance Program. In addition, damages documented by previous post-disaster inspection, but that not repaired, are ineligible and can result in the entire flood protection facility being ineligible for funding through the program.

This appendix includes tables that provide a summary of the eligibility of King County's revetments, based on records covering past flood damages documented after federally declared disasters, and documentation concerning of the degree to which these damages were or were not repaired. In these tables, revetments are characterized as being "eligible", "ineligible" or "partially eligible". For facilities which have not been characterized, or where records are not clear, the eligibility for assistance under the Public Assistance Program have been listed as "uncertain." The designation "N/A" under the column with the heading "PAP" for "Public Assistance Program" indicates that the river protection facility is a levee, and therefore not eligible for the program.

Federal Funding for Levee Repairs – The Rehabilitation and Inspection Program

The Rehabilitation and Inspection Program, promulgated through Public Law 84-99, is managed by the U.S. Army Corps of Engineers. This program is intended to help local jurisdictions repair levees damaged by flood events by providing a 80:20 federal to local cost share for levee repairs. The Rehabilitation and

Inspection Program can implement flood damage repair projects on a levee regardless of whether the damage occurred as a result of a federally declared flood disaster. Participation in the program is voluntary on the part of the local jurisdiction. Levees are eligible for consideration in this program regardless of whether they meet FEMA levee certification standards. Certification or decertification of a levee by FEMA can affect the 100-year floodplain as portrayed on the FEMA Flood Insurance Rate Maps, but does not affect the ability of the local jurisdictions to seek federal assistance to repair levees through the Rehabilitation and Inspection Program.

To qualify for the Rehabilitation and Inspection Program, levees are initially inspected the U.S. Army Corps of Engineers and the local sponsor to determine whether they meet minimum structural and inspectability standards established by the U.S. Army Corps of Engineers. If a levee meets these standards, it is considered "active" and is eligible for assistance if it is subsequently damaged and if the benefit-cost ratio of the needed repair is favorable. Levees which do not meet the minimum standards during the initial inspection, may become active if deficiencies are corrected. Correcting these deficiencies is the responsibility of the local jurisdiction.

Once enrolled in the Rehabilitation and Inspection Program, levees are reinspected annually to identify potential damages and determine whether minimum standards are still being met. During these inspections, outstanding maintenance needs are noted and the status of each levee is conveyed from the U.S. Army Corps of Engineers to the local jurisdiction via an inspection report. Levees with significant deficiencies may be put on probation, but remain active and eligible for flood damage repair funding until the next inspection. If the documented deficiencies have not been corrected by the next inspection, the levee is considered inactive and ineligible for assistance through the program. At any time, the local jurisdiction may correct deficiencies, request reinspection, and seek restoration of the flood protection facility to active status.

King County currently has approximately 35 miles of levees that could be considered for inclusion for the Rehabilitation and Inspection Program; however, due to structural shortcomings and an ongoing disagreement between King County and the U.S. Army Corps of Engineers concerning appropriate vegetation management standards for salmonid bearing streams in the Pacific Northwest, few of these levees are active in the program. The U.S. Army Corps of Engineers standards were developed for nationwide purposes and require that all vegetation over two inches in diameter be removed from the levees. In the late 1990's King County took the positions that preventing the natural development of native plant communities on King County levees was inconsistent with the multiple use objective of King County's River and Floodplain Management Program. While King County annually removes most of the non-native vegetation from its high priority levees for access and inspection purposes, the alteration of native vegetation is limited to the removal of hazard trees and minor damage inherent in the control of invasive species.

In the tables following this section, the status of King County levees with regard the Rehabilitation and Inspection Program is listed as either "active", "inactive", "on probation" or "TBD". "TBD" indicates that the levee still needs to be inspected by the U.S. Army Corps of Engineers. The designation "N/A" Under the column with the header "RIP" for "Rehabilitation and Inspection Program" indicates that the flood protection facility is a revetement, and therefore not eligible for the program.

APR 20 2009

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GordonDerr LLP

**Golder
Associates**

April 16, 2009

Our Ref.: 093-93148.000

GordonDerr LLP
2025 First Avenue, Suite 500
Seattle, WA 98121-3140

Attention: Jeff Weber

**RE: GEOTECHNICAL REVIEW
GREEN RIVER LEVEE SLOPES AND BUFFERS
TUKWILA, WASHINGTON**

Dear Mr. Weber:

Golder Associates Inc. (Golder) is pleased to present our comments related to the geotechnical levee design aspects of the *Draft Tukwila Shoreline Master Program, 2009* (TSMP). We have reviewed the recommended slope inclinations and buffer widths presented. The following sections contain our professional opinion of the proposed slope inclinations and buffer widths, as well as the extent of the flood protection provided by the levees. Based on our review, the slope inclinations (and subsequently buffer widths) appear to be driven primarily by the desire to provide bank stability, to increase the effective width of the river during flooding, and to establish and maintain vegetation to improve ecological functions in the river.

Flood Protection Provided by Levees

The area afforded protection by the levee generally extends beyond properties immediately adjacent to the levee. The specific extent of protection is a function of several factors, including primarily the geometry of the ground surface behind the levee. A large area is protected from flooding by the Green River levees because there is minimal change in the ground surface grade on the landside of many of the levees. The 2006 *King County Flood Hazard Management Plan*, for example, indicates that the Segale and Desimone levees provide protection for substantial public infrastructure, including state highways and city streets in the lower Green River valley, as well as widespread dense commercial areas.

Future development along the Green River which does not disturb the levee generally does not impact the flood protection the levee provides or the existing stability of the levee. It is apparent that the levees within the City of Tukwila provide protection far beyond the immediate vicinity of the levees.

City's Proposed Buffer Requirements

Based on Chapter 7 of the Draft TSMP, the commercial properties south of I-405 would be designated as an Urban Conservancy Shoreline Environment. For areas adjacent to levees, a buffer is designated as having a width of 125 ft. landward from the ordinary high water mark. It is noted that

the buffer width is the "maximum" needed to reconfigure the river bank to achieve an overall slope of 2.5H to 1V (horizontal to vertical) and to incorporate a mid-slope bench ("overall" refers to the slope from the bottom to top of the levee; the slope of the levee sides below and above the midslope bench would be steeper, as noted below). An alternative standard is mentioned that does not require a 125 ft. buffer but indicates that an adjacent property owner would be responsible for construction and includes the following;

- Overall slope of 2.5H to 1V on river side
- 15 ft. mid slope bench
- 20 ft. crest width for access
- 2H to 1V slope on land side
- A 10 ft no-build zone measured from the land side of the levee toe

The City's documentation supporting the TSMP indicates that the 15 ft. horizontal bench is included in the calculation of overall slope and therefore the actual river side slope of the levee can be as steep as 2H to 1V. An Informational Memorandum dated September 9, 2008 and prepared by the Director of Public Works/Director of Community Development for the City of Tukwila addresses the subject of shoreline buffer zones in particular reference to the levee rehabilitation project for the Briscoe School Levees. This memorandum is provided for reference as an attachment. A typical levee profile is provided as Attachment 2 in the memorandum. This profile shows river side slopes of 2H to 1V and a 15 ft. vegetated bench, therefore confirming that where the term overall slope is used, the mid-slope bench is being included.

Analysis of Proposed Buffer Width from Standpoint of Slope Stability

As noted above, the proposed overall levee slope inclination presented in the Draft TSMP is 2.5H to 1V. This slope inclination was selected to be consistent with the United States Army Corps of Engineers *Manual for the Design and Construction of Levees* (EM 1110-2-1913). However as noted above an actual river side slope of 2H to 1V is apparently being recommended in combination with a 15 ft. mid-slope bench.

An overall levee slope steeper than 2.5H to 1V may provide an equivalent or improved stability over the slopes proposed in the Draft TSMP. Applying a uniform cross-section to all areas neglects site specific subsurface characteristics which may support steeper side slopes. However, it is unlikely that slopes steeper than 2H to 1V would be acceptable without extensive geosynthetic and/or bioengineering reinforcement.

A reasonable standard for levee side slopes is 2H to 1V based on our review of recommended levee geometry presented by King County and the Army Corps of Engineers. The Army Corps of Engineers and the *King County Flood Hazard Management Plan*; recommend levee slopes at 2H: 1V or flatter. Reports reviewed include the United States Army Corps of Engineers (USACE) *Design and Construction of Levees* (EM 1110-2-1913), the *Slope Stability Analyses of Four Green River Bank Stabilization Repair Projects* by Shannon and Wilson Inc for the King County Water and Land Resource Division dated January 1999, and the *2006 King County Flood Hazard Management Plan*. A brief summary of slope and vegetation recommendations in the above reports is presented in the following text.

- 1) The USACE recommends a "side slope flatter than or equal to 1V on 2H, regardless of the levee height or the possibly less requirements indicated in the results of stability and seepage analyses." The report also provides minimum factors of safety for the levee under different water level conditions. Site specific investigations and analyses have not been performed, however it is likely that the subsurface conditions and analyses would support side slopes as steep as 2H to 1V.
- 2) Shannon and Wilson performed slope stability analyses of four Green River bank stabilization projects (including the Desimone Levee) for the King County Water and Land Resources Division. In the areas analyzed by Shannon and Wilson, the average existing slope inclination was 1.5H: 1V. Based on the results of the stability analyses, recommendations were presented for levee slopes with and without a mid-slope bench. The recommended slope inclination for levees with a mid-slope bench was 1.75H to 1V. For levees without a mid-slope bench, a slope inclination of 2.25H to 1V was recommended. The horizontal distance of the two options is similar. The Shannon and Wilson report also provides options such as use of a gravel shell to increase stability, which produces acceptable factors of safety for a 2H to 1V slope with no mid-slope bench.
- 3) Based on the *King County Flood Hazard Management Program*, "a ratio of 2 ft. horizontal run to 1 ft. vertical rise (2H to 1V) is the steepest slope considered stable...". The use of steeper slopes may be achievable based on site specific subsurface conditions with the use of slope reinforcement. The King County Flood Hazard Management Program focuses on the stability of levees and the flood protection they provide.

Depending on the subsurface conditions, and based on the above, levee slopes at varying inclinations can offer the same protection and stability as required by the *Draft Tukwila Shoreline Master Program*.

The proposed levee slope geometry in the Draft TSMP includes a bench whose primary function appears to be for the establishment of vegetation. While benches can be used to improve the global stability of a levee, they do not influence the surficial stability of the levee slopes. There are other methods of achieving the equivalent global stability without incorporation of a mid slope bench. Moreover, vegetation can be established on levee side slopes to provide erosion protection and native habitat without negatively affective stability. A midslope bench is not required to establish vegetation, as evidenced by most existing levees in King County which are covered with vegetation, often at slopes steeper than 2H to 1V. Levee slopes designed with geosynthetic reinforcement can also be vegetated on the slope face. Moreover, as noted below, if one wished to design a levee with a midslope bench to further increase the area for vegetation, the width of that bench could vary without a negative impact on stability.

While, as discussed above, a reasonable standard for levee side slopes is 2H to 1V, alternatives to levees with that slope are available that can provide equivalent flood protection (as well as an opportunity for vegetation) with a steeper profile (thus requiring less land area). It is also possible that slopes steeper than 2H to 1V would meet the COE stability requirements if geo-grid reinforced slopes were used. Geo-grid reinforced slopes could still be used in conjunction with a mid-slope bench.

In addition, an alternative to levees, which has been used extensively in urban areas and where space is limited, is flood walls. The Corps of Engineers evaluated the use of flood walls for the Section 205

levee repair (see attachment) and decided against their use because of concerns related to seepage under the walls, access and increased costs to construct and maintain. However, these concerns can be addressed and we have recommended the use of flood walls for flood protection projects in Washington State where space is limited. They have also been used extensively in urban areas throughout the United States. Flood walls can be constructed as a typical concrete wall and can incorporate sheet piles designed to mitigate potential seepage problems in flood events. They could be constructed on or through existing levees in order to reduce the required buffer width, while still providing areas for vegetation establishment. For example the same levee profile up to the vegetation bench could be used and then instead of using a levee section above the bench a combination of levee and flood wall could be used. Flood walls are likely to be more expensive but their use may be justifiable where there is insufficient room for the proposed improvements. Access to the levee could be maintained via the bench or by the use of openings in the flood wall that would be closed with stoplogs. While it would be likely that flood walls would only be useful over limited distances, they nonetheless could be an effective alternative to avoid the need to impact existing structures within the buffer zone.

Finally, even if one were to accept the City's general approach to the desired levee profile, we note that the proposed 125 ft. buffer width in levee areas very likely provides more room than is actually needed to establish stable levees in many cases. The proposed width includes additional zones in excess of that which would be needed solely for levee stability. With respect to the proposed 15 ft. vegetation bench, based on the above references, either a smaller bench width or a different levee design could be used while still achieving acceptable levels of stability. In addition, the 20 ft. crest width for access to the levee crest could be reduced. Finally, the proposed 125 ft. buffer area is designed to provide enough room to achieve a certain backslope inclination, but depending on site specific elevations the amount of room required for the backslope will vary such that in many cases less than 125 ft. would be required. Depending on the site specific conditions, levee stability can likely be achieved within an area less than the 125 ft. proposed buffer width while still maintaining acceptable overall stability.

In sum, there are several alternatives to maintain levee stability while providing areas for vegetation establishment and levee access. A site specific approach to evaluating and establishing levee slope geometry and buffer widths is appropriate for locations where the buffer zone impacts on existing structures. The City's use of a general 125 ft. buffer also does not take into account the fact that the actual distance required for the buffer will vary depending on the height of levee above existing ground surface. Depending on geometry the actual buffer required may be less than 125 ft. even under the City's approach. It would be useful for the City to establish the precise buffer zone required based on site specific circumstances where there is likely to be an impact on a property owner.

Based on our experience and understanding of the Corps of Engineers levee work throughout the U.S. many forms of levee slope and floodwalls meet stability requirements and are acceptable design alternatives. In particular flood walls have been used extensively to protect urban areas as well as levees with side slopes of 2H to 1V.

Summary

A site specific approach to evaluating and establishing levee slope geometry and buffer widths would be more appropriate than applying a uniform cross-section and buffer width to all proposed slopes and levees. Overall stability of levees may be feasible at slopes steeper than 2.5H to 1V. With the use of geosynthetic reinforcements, levee slopes steeper than 2H to 1V can be designed to provide the same slope stability depending on site specific subsurface conditions. In addition flood walls can be used in selected areas while allowing for vegetation benches but reducing the required buffer zone. Regardless of the recommended levee slope face, the proposed buffer widths include zones in excess of what is required for stable levees.

Sincerely,

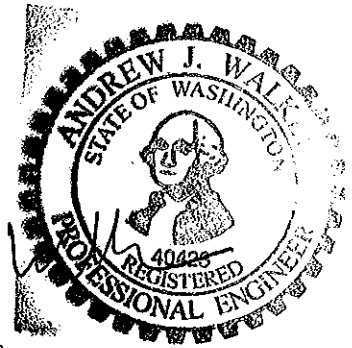
GOLDER ASSOCIATES INC.

Katy Cottingham

Katy S. Cottingham, P.E.
Project Engineer

Andrew J. Walker

Andrew J. Walker, P.E.
Principal



KSC/AJW/sb

Attachments: City of Tukwila, Informational Memorandum to Planning Commission, September 9, 2008

REFERENCES

Summary Report: Slope Stability Analysis of Four Green River Bank Stabilization Repair Projects, King County, Washington, prepared by Shannon & Wilson, Inc. dated January 1999.

Draft Tukwila Shoreline Master Program, prepared by Tukwila Department of Community Development, dated February 5, 2009.

2006 King County Flood Hazard Management Plan, prepared by King County Department of Natural Resources and Parks, Water and Land Resources Division, dated January, 2007.

Design and Construction of Levees, Engineering Manual EM 1110-2-1913 prepared by the U.S. Army Corp of Engineers, dated 2000.

ATTACHMENTS

INFORMATIONAL MEMORANDUM

To: Planning Commission

From: Director Public Works
Director Community Development

Date: September 9, 2008

Subject: Proposed Shoreline Buffers

Issue:

What factors were considered in establishing the proposed 50-foot, 100-foot and 125-foot buffers?

Regulatory Context:

Under the Shoreline Management Act (SMA), the City is required to prepare a Shoreline Master Program (SMP) to regulate activities along the Green/Duwamish River and to establish development standards, including setbacks or buffers to protect the most sensitive areas of the shoreline from uses that would cause a net loss of ecological functions to the shoreline. The SMA defers to local jurisdictions to determine the most appropriate regulations in accordance with the Department of Ecology guidance. However, the Department of Ecology has the final say in approving the local SMP.

For areas that are unincorporated, King County has jurisdiction and establishes the regulations to govern uses in the shoreline. For areas that the City has annexed, but were not part of the City when it originally adopted its SMP in 1974, the City continues to administer King County's shoreline regulations. One advantage of the City's SMP Update will be to have one program that is administered for the entire City rather than two. King County's current shoreline regulations, like the City's, do not address the most recent Department of Ecology shoreline regulation requirements and if submitted to Ecology today, would not be approved. For example, King County's SMP Update is proposing a buffer width of 115-feet plus a 15-foot inspection width (Total of 130-feet) for urban areas. See accompanying chart, Attachment 1, comparing adjacent jurisdiction buffer widths. Tukwila's proposed buffer widths are generally in line with proposed buffer widths in King County and City of Seattle and existing buffer widths in Kent and Auburn.

Tukwila could adopt another jurisdictions' regulations; however, the City would need to document the basis for using those regulations rather than developing regulations itself.

Background:

The Green River flows northwest about 93 miles from its headwaters in the Cascades to its outlet in Elliott Bay via the Duwamish River. The Green River basin drains 483 square miles and flows through several cities, primarily in its lower reaches, including Auburn, Kent, Tukwila, and Seattle. The lower Green River runs from Auburn down to River Mile 11 (just north of Fort Dent Park) and becomes the Duwamish River, which flows to the mouth of Elliot Bay.

The lower Green and Duwamish Rivers are almost entirely sand-and silt-bedded. In- river habitat is dominated by a single habitat type, and there has been extensive reduction and isolation of off-channel habitats, such as side channels, oxbows, and tributaries. There is extensive tidal influence from the mouth of Elliot Bay to River Mile 11. Levees and revetments severely limit the connectivity, amount, and diversity of riparian vegetation along the river. The existing riparian vegetation is dominated by invasive species.

The main period of runoff and major flood events on the Green River is from November through February. The lower Green and Duwamish levees and revetments form a nearly continuous bank protection and flood containment system. Farmers originally constructed many of these levees and revetments as the protection to the agricultural lands of the area and this original material is still in place as the structural core. In particular, these protection facilities typically have over-steepened banks, areas with inadequate rock buttressing at the toe, and a lack of habitat-enhancing features such as overhanging vegetation or in-water large woody debris. Because of these design and construction shortcomings, the river system has not always performed as intended.

In November 2006 the area experienced a severe winter storm. The Duwamish River had flows that exceeded 12,000 cubic feet per second, Flood Stage Three, and as a result, parts of the levee suffered extensive damage to its banks, levees, and streambed. The U.S. Army Corps of Engineers inspected the levee and revetments on November 16, 2006 and again in the early fall of 2007. The City was notified on February 5, 2008 that Tukwila's 205 Levee needed to be immediately repaired in order to provide adequate flood protection and retain its certification.

Since notification, the City, the Corps, and King County Flood Control District have diligently worked to create a design that would minimize the impact to the abutting property owners and reduce the need for continual repairs. The paramount criteria however has been to provide for:

1. Public Safety;
2. Maintaining levee certification;
3. Solutions that eliminate or correct factors that have caused or contributed to the need for the levee repair;
4. Levee maintenance needs; and
5. Environmental considerations.

Before arriving at the final design, the Corps analyzed 6 repair alternatives:

1. No Action Alternative;
2. Repair to Pre-Flood Condition Alternative;
3. Retaining Wall Alternative;
4. Remove and Repair with Geo-textile Wrap Wall Alternative;
5. Layback Levee Alternative; and
6. Non-structural Alternative.

The levee on the west side of the Duwamish River was built in 1991 using the Corps' minimum design standards. This standard established the angle of the waterside slope at 2:1. Since being built, there has been over \$10,000,000 of repairs, including on-going efforts, required to correct damage.

The Corps rejected the *Repair to Pre-Flood Condition* Alternative because of the past history of repeated and costly repair projects. The Corps' Project Information Report states, "The repair to pre-flood condition is not acceptable since the scour¹ would occur again." [Note: Scour is the erosion of the river's soils and sediments that provide support for the banks and levees and when the support is lost sloughing occurs.] Other contributing factors are contained in the 2006 *King County Flood Hazard Management Plan*:

"Levee slope is extremely over-steepened at approximately 1.4H:1V to 1.8H:1V, and therefore lacks adequate structural stability to provide minimum factors of safety for several modes of failure. No toe buttress structure has ever been constructed in this sub-reach. The riverward slopes are largely dominated by invasive blackberries and reed canary grass,"

In other words, returning the levee to the *Pre-Flood Condition* using the Corps' minimum design standard would not solve the problem, result in a lower level of safety, and it would be just a matter of time before the levee would need more repairs. Further, machinery cannot reach from the top of the levee to the toe to perform periodic vegetative control maintenance, which has been repeatedly noted by the Corps in their annual inspection reports.

To overcome the existing problems and to reduce future maintenance and repair costs, the Corps chose to lessen the overall slope to a stable grade. See Attachment 2 - Profile. This selected method is consistent with recommendations set forth in the Corps of Engineers' Manual for Design and Construction of Levees (EM 1110-2-1913) for slope stability. It also is consistent with the levee rehabilitation project constructed on the nearby Briscoe School levee that has proven to be a very effective solution to scour problems – slows the river down, provides for vegetation, etc. The Corps, in a letter dated Sep 27, 2007, indicated that this type of profile would become the template for future levee repair and construction projects (Attachment 3). The City Council also reviewed all of the options and concurred with the Corps' decision. The City Council became involved because the ongoing levee repair project required the acquisition of additional land, a Tukwila responsibility resulting from the 1991 agreement between the Corps and the City.

¹ Scour is the erosion of the river's soils and sediments that provide support for the banks and levees.

To minimize the levee footprint, the Corps, King County Flood Control Zone District, and the City also considered the following profile characteristics:

- Width of the levee top;
- Landward slope of the levee;
- Slope of the riverside launchable toe rock;
- Width of the mid-slope bench (needed for maintenance and lessening the effects from scour);
- Location of the "woody debris" and its associated anchor rock – environmental requirement;
- Width of the landward easement – needed for levee access and inspection.

Discussion:

Engineering Aspects

Because of the similarities in the soil conditions and taking into consideration the tidal influence, we can divide the Green/Duwamish River into three areas – South of I-405; North of I-405; and areas around residential neighborhoods. Looking at the slope geometry and the difference in height between the ordinary high water mark and the 100-year flood elevation for these three areas, we find that 125-feet of setback distance (buffer) is needed to accommodate the "lay back" of the levee in the area south of I-405 and around Fort Dent Park. For areas north of I-405, a 100-foot setback distance is required. Within residential neighborhoods, a 50-foot setback is justified because of the less intense land use associated with single-family home construction.

Even though the buffer distance has been established using the levee as the example, the same problems exist where there are no levees. The river makes no distinction between an over-steepened slope associated with a levee or a riverbank. Scouring within the river will cause sloughing, property will be lost, and slope stability will be weakened. Specifically, the non-leveed riverbank can be more prone to these problems since they tend to be steeper and consist mainly of sand and silt. This makes them susceptible to erosion. Because the non-leveed riverbanks are for the most part privately owned, they are not actively monitored for damage. See attached photos, Attachment 4, of damage done to banks with over steepened slopes.

Environmental Aspects

In addition to engineering criteria for establishing the proposed buffer widths, shoreline ecological functions were also taken into account. The Shoreline Management Act and the Department of Ecology regulations require evaluation of ecological functions and that local SMPs ensure that the policies and regulations do not cause any net loss of shoreline ecological function. In addition, the SMP must identify mechanisms for restoration of lost ecological functions.

The crucial issue for the Green/Duwamish River is the presence of salmonids that are on the Endangered Species list. To protect and restore ecological functions related to these

species it is important to provide for the installation of native vegetation along the shoreline. Such vegetation provides shade for improving temperature conditions in the river and habitat for insects on which fish prey. Trees along the shoreline also provide a source of large woody debris (tree trunks, root wads, limbs, etc. that fall into the water), which in turn provides pooling and areas of shelter for fish and other animals. In order to allow for planting of native vegetation, banks need to be set back to allow for more natural slopes, so that they can be planted. The Corps of Engineers does not allow planting on levees unless they are set back to an average slope of 2.5:1 and constructed with a mid-slope bench. Plantings are allowed on the mid-slope benches and this is crucial for improving shoreline ecological functions that are needed in the river.

It is also important to note that under Tukwila's Sensitive Areas Ordinance, buffers for Type II watercourses (the Green/Duwamish is Type I – the highest quality of watercourse), are set at 100 feet and this was based on best available science. Therefore, the proposed buffers of 100 and 125 feet for the High Intensity and Urban Conservancy Environments are in line with best available science for protecting watercourses. The proposed buffer of 50 feet in the Shoreline Residential Environment, represents a compromise – 100 feet is not feasible due to the existing development pattern.

Summary:

Recommended buffer widths were primarily developed with sound engineering criteria, in order to protect property from damage due to scouring and sloughing of the riverbanks, as well as to protect or restore shoreline ecological functions.

Attachments:

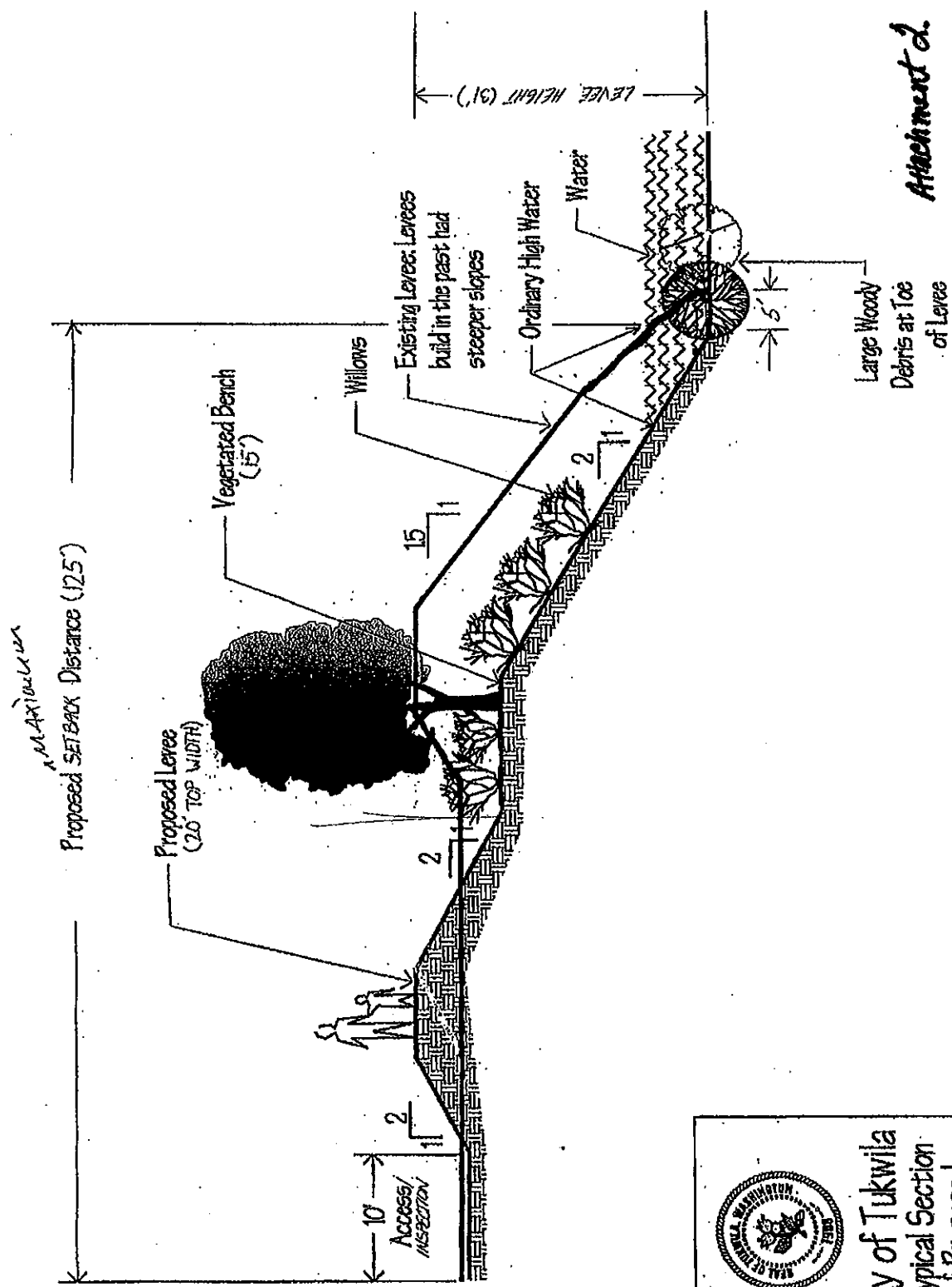
1. Comparison of Buffer Widths Between Jurisdictions
2. Typical setback profile
3. U.S. Army Corps of Engineers letter dated Sep 27, 2007
4. Photos of bank erosion

P:\Shoreline\PC Review\PC Agendas-Memos\infomemo91608 buffer widths.doc


Comparison of Existing and Proposed Buffer Distances Green/Duwamish River

Jurisdiction / Regulation or Plan	Buffer or Setback Distance	Notes
Existing Tukwila SMP (1974; TMC 18.44)	40-ft (River Zone)	
Tukwila SAO (TMC 18.45)	100-ft for Type 2 streams	Buffer for Green/Duwamish defers to SMP
Tukwila SMP Update (File L06-088)	50-ft (Shoreline Residential); 100-ft (High Intensity, Urban Conservancy north of I-405); 125-ft (Urban Conservancy)	Proposed – not yet adopted
Existing King County SMP (Title 25 KCC;)	20-ft setback (residential); 50-ft (multi-family; commercial; industrial)	
King County CAO (Ord. 15051; 2004)	115-ft for "Type S" Shorelines of the State in urban areas plus 15 ft. building setback	
King County SMP Update (2008-ongoing)	115-ft (integrate CAO standards) plus 15 ft. building setback	Proposed - not yet adopted
King County Flood Hazard Management Plan (2006)	Levee design standards require new or repaired levees at 2.5H: 1V slope; Requires ~100-125 feet from toe of levee	Plan adopted and Flood Control Zone District created 2007
Auburn SMP (Ord. 6095; 2008)	100-ft (Shoreline Residential & Urban Conservancy); 200-ft (Natural)	Adopted June 2008; integrates CAO buffer
Existing Kent SMP (KCC 11.04; 1999)	100-ft (or 75-ft from centerline of dike) (residential); 200-ft (commercial)	Recently initiated SMP update; no specific proposed buffers
Kent CAO (KCC 11.06)	100-ft Type 2 Stream	Buffer for Green/Duwamish defers to SMP
Existing Seattle SMP (Ord. 11845; SMC 23.60; 1996)	25-75-ft (residential); 0-100-ft – variable setbacks specified by use	Recently initiated SMP update; no specific proposed buffers
Seattle ECA (Ord. 122050; 2006)	0-100-ft for Type 1 Shorelines of the State; defers to SMP	Recently updated; defers to SMP

ATTACHMENT 1



Attachment 2



City of Tukwila
Typical Section
of Proposed
Levee



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-2255

RECEIVED

OCT 16 2007

TUKWILA
PUBLIC WORKS
SEP 27 2007

Emergency Management Branch

Mr. James Morrow
Director, Public Works
City of Tukwila
Tukwila, WA 98188

Dear Mr. Morrow

This letter is a follow up to our recent meeting regarding the Lower Green River Flood Damage Reduction Section 205 Levee Repair. The Corps has nearly completed evaluating the repair alternative for this levee and will be submitting a Project Information Report (PIR) to the City of Tukwila for review by 12 October, 2008.

The Corps of Engineers investigated and evaluated at least 3 alternatives for each site. These alternatives include:

1. Repair back to pre-flood condition.
2. Replace the landward slope of the levee with a flood wall.
3. Lay back the levee slopes to a stable grade.

The recommendation from the evaluation team for both damage sites is to lay back the levee slopes to a stable grade. The attached drawings show the proposed recommended repair alternative. This alternative provides the highest level of safety and reduces future maintenance and repair costs for the levee. The levee footprint for this alternative extends beyond the existing levee footprint and will require the City to obtain the necessary real estate interests. Our Real Estate Division staff will be working with you on the specific types of rights and interest necessary for successful project certification.

The team concluded that the pre-flood riverward slopes at both damage locations were 1.5 Horizontal to 1 Vertical or steeper. Repairing back to the pre-flood condition will result in a lower level of safety and will likely have higher maintenance and repair costs in the future.

The team also evaluated replacing the landward slope of the levee with a flood wall. This allows the riverward slope to be re-graded to a stable slope without changing the overall levee footprint. This alternative was not recommended due to the following negative impacts:

1. The flood wall alternative could increase the likelihood of seepage problems.
2. Access for maintenance and emergency response would be difficult.
3. This alternative would have increased Engineering and Construction costs over the other alternatives.
4. Future maintenance costs are anticipated to be higher for this alternative.

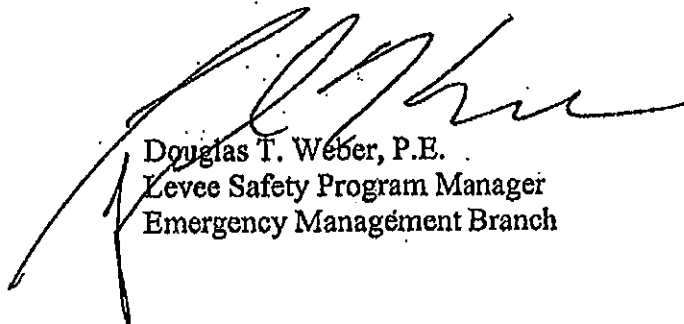
The selected repair alternative is consistent with recommendations set forth in the Corps of Engineers' Manual for Design and Construction of Levees (EM 1110-2-1913) for slope stability.

ATTACHMENT 3

This alternative is also consistent with the levee rehabilitation project currently under construction on the nearby Briscoe School levee and this type of alternative is anticipated to be used as a template for future levee repair and construction projects. Please note that the attached drawings are conceptual at this time with the intent to provide the City with an outline of the proposed levee footprint. Design changes and refinements such as the incorporation of habitat features may occur during the Engineering and Design phase of the project. The City will be provided with a fully developed levee footprint and design for review, comment, and concurrence prior to final plan approval for construction.

If you have any additional questions please contact Laura Orr, Project Manager at (206) 764-3575 or email Laura.A.Orr@USACE.ARMY.MIL so, do not hesitate to contact me at (206) 764-3406 or email me at Douglas.T.Weber@USACE.ARMY.MIL.

Sincerely,

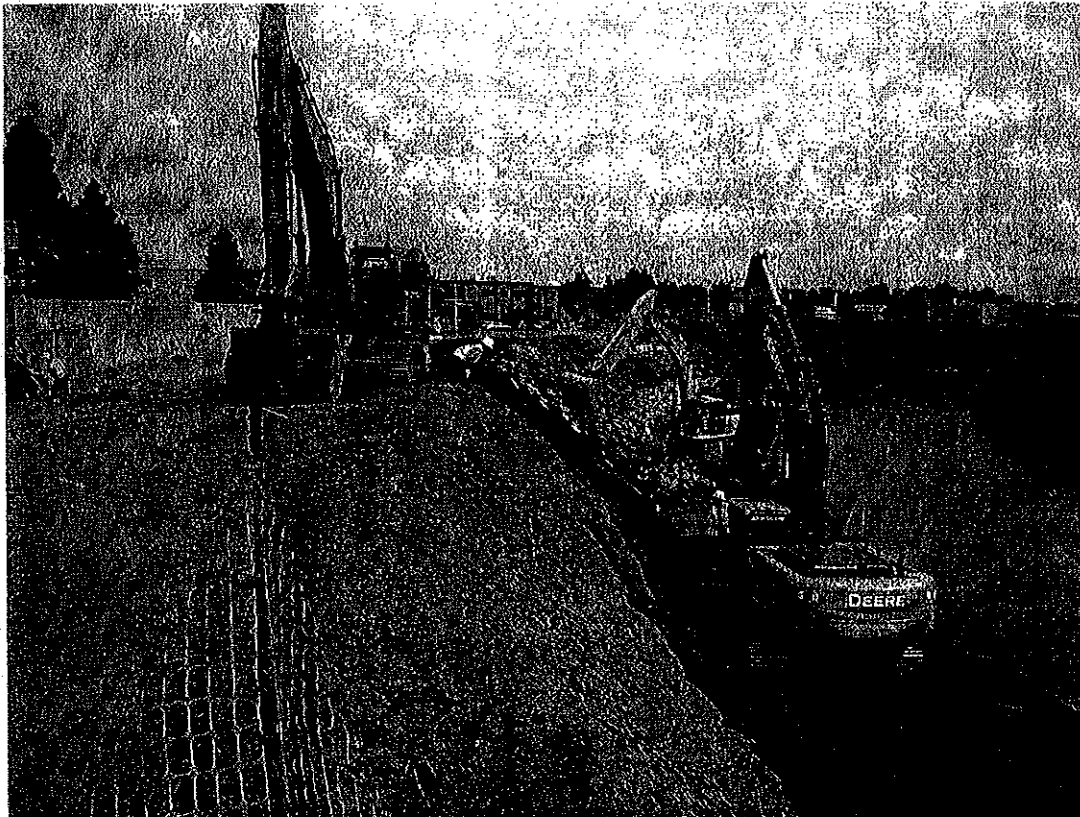


Douglas T. Weber, P.E.
Levee Safety Program Manager
Emergency Management Branch

Copy Furnished:

Steve Bleifuhs, Manager
River and Floodplain Management Unit
Water and Land Resources Division
King County Department of Natural Resources & Parks
201 S. Jackson St., Ste. 600
Seattle, WA 98104

Attachment 4



Levee Repair – Site 5

8/8/2008



Levee Repair – Site 5

8/8/2008



Levee Repair – Site 3, scour location

8/8/2008



Bank Scour – Across from Site 3 Levee Repair, West Valley Highway

8/8/2008



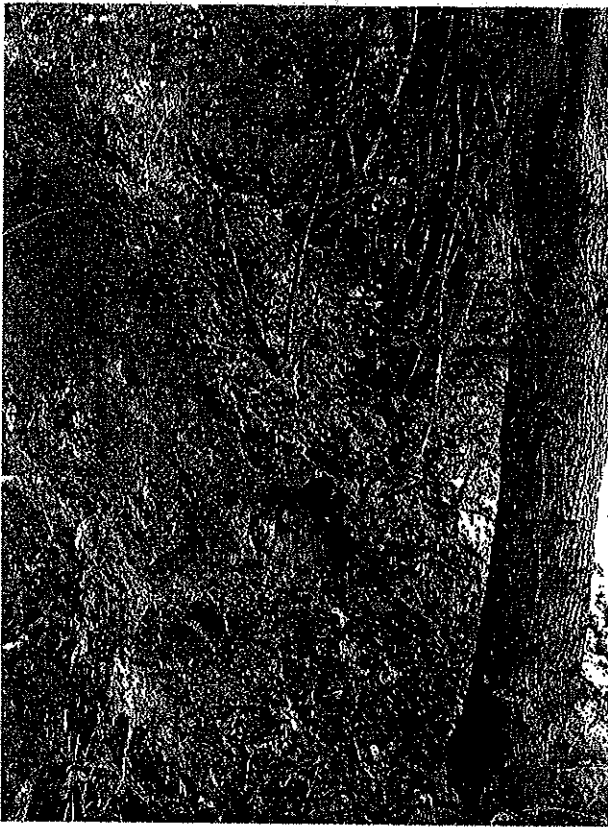
Levee Repair – Site 3

8/8/2008



Bank Sloughing – Private property along Interurban

8/8/2008

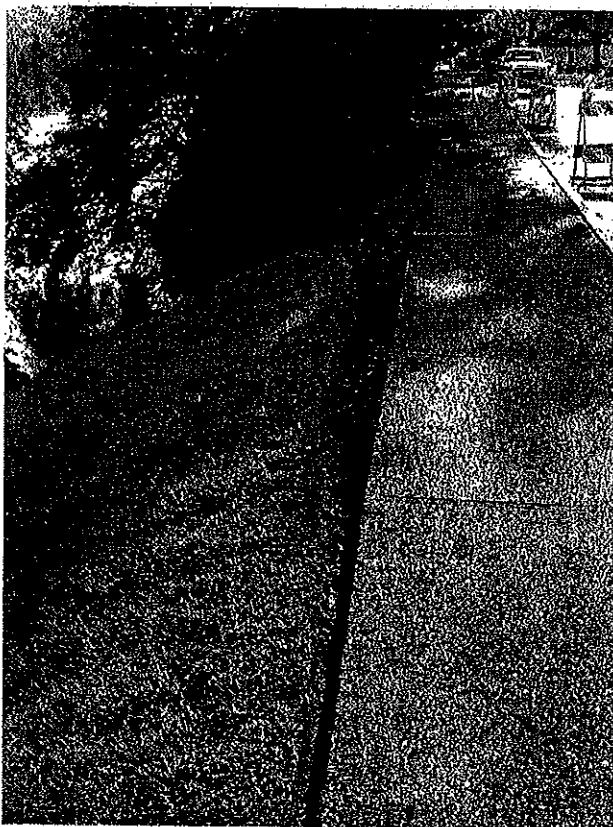


Bank Sloughing – Private property along Interurban, bank condition
8/8/2008



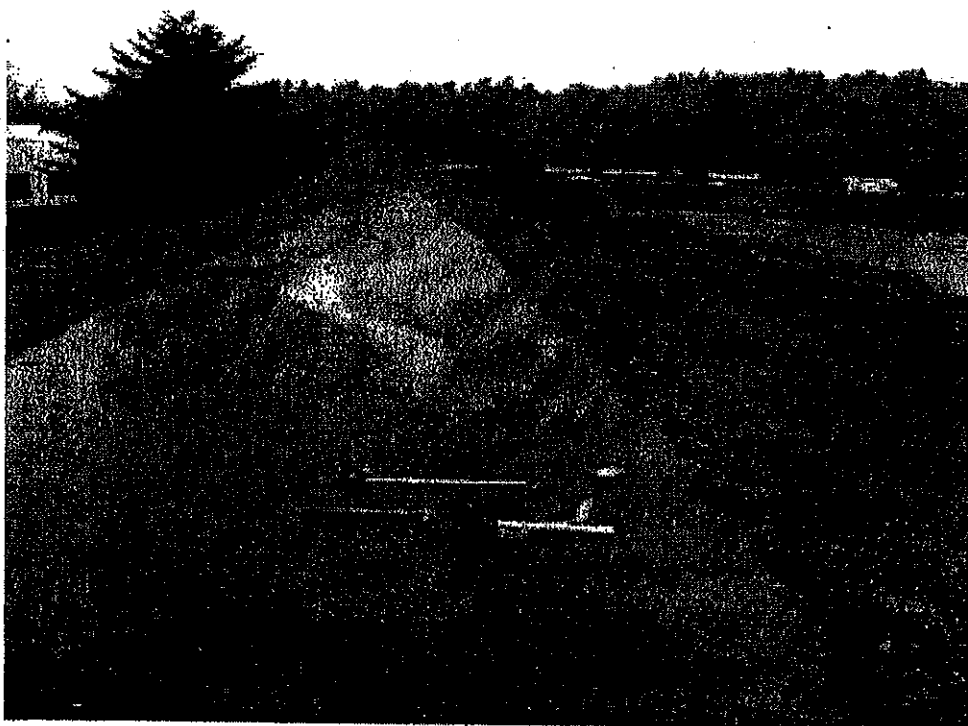
Riverbank Slough, Tukwila Commerce Park

8/8/2008



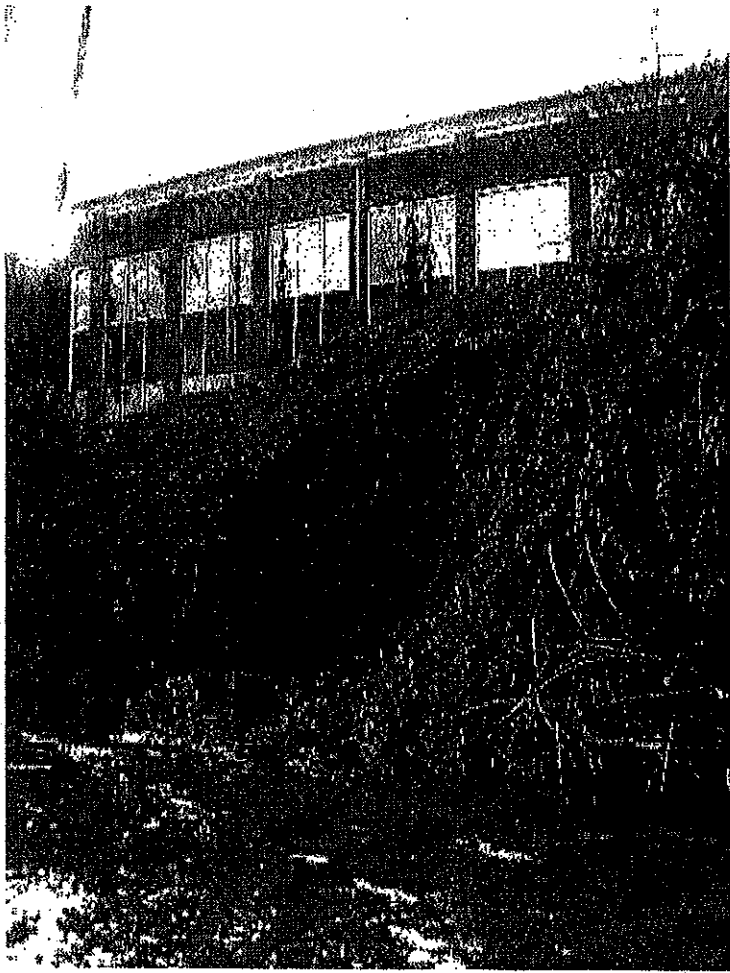
Riverbank Slough, Tukwila Commerce Park

8/8/2008



Levee Cracking- Lower Green River (Kent)

2006



Slope Erosion and slumping failure

2006



Education

M.S. Geotechnical
Engineering, Cornell
University, Ithaca, New
York, 1989

B.Sc. Civil Engineering,
Heriot-Watt University,
Edinburgh, Scotland, 1984

Certifications

Registered Professional
Engineer, Ontario

Professional Engineer
(Civil), Washington

Redmond

Employment History

Golder Associates Inc. – Redmond, Washington

Associate (2001 to Present)

Providing geotechnical expertise to site investigations, MSE retaining wall design, slope stability, deep foundation design (piles and drilled shafts), ground improvement/underpinning, design of shoring systems (both soldier pile and tieback and soil nails) for deep excavations and numerical analyses. Responsible for forensic analyses of settlement problems, retaining wall and slope failures. Project manager on several retaining wall and floor slab/foundation rehabilitation projects. Responsible for geotechnical investigations for buildings and bridges.

Golder Associates Ltd. – Toronto, Canada

Senior Geotechnical Engineer to Associate (1989 to 2001)

Responsible for site investigations for buildings, bridges and tunnels; investigations, analysis and stabilization works for landslides; installation and monitoring of geotechnical instrumentation; slope assessments for establishing setback criteria; foundation inspection; bearing capacity analyses of deep and shallow foundations, earth pressure analyses on retaining walls and bridge abutments; dynamic stability analyses of dams and liquefaction susceptibility assessments. Settlement analyses of bridge approaches on soft clays – design of settlement mitigation options including light weight fills and wick drains. Associate from 1998.

Cornell University – Ithaca, New York

Teaching and Research Assistant (1986 to 1989)

Instructed laboratory and recitation classes for undergraduate and graduate classes in introductory soil mechanics and foundation engineering. Research project involved installation of a resonant column and torsional shear device and investigation of the dynamic properties and liquefaction potential of silts with varying plasticities, and was supported by the National Centre for Earthquake Engineering Research.

Sir M. MacDonald and Partners – Cambridge, England

Dams Engineer (1984 to 1986)

Performed stability analyses of dams and retaining structures. Designed hydraulic control structures for dams. Involved in the Carsington Dam failure investigation including extensive stability and finite element analyses



SELECTED PROJECT EXPERIENCE

**Centralia Flood
Reduction Project;
Pacific International
Engineering/Grant
County
Centralia, Washington**

Project manager and engineer responsible for carrying out a levee assessment project in Centralia which involved the construction (raising and new levees) of approximately 74,000 linear feet of levees and included the following tasks:

- Collecting and presenting existing geotechnical data;
- Design of preliminary levee sections for use in cost estimating;
- Determination/assessment of borrow sources; and
- Development of a geotechnical investigation program.

**Mt Vernon Downtown
Redevelopment
Project; Pacific
International
Engineering/Skagit
County
Washington**

Project manager responsible for providing recommendations for the raising and improvement of levees in downtown Mount Vernon, Washington. The project consists of providing preliminary interpretations of the foundation conditions underlying the levees; summarizing potential geologic hazards to the levees, recommendations for the design and construction of the improved levees, identifying potential borrow sources, and recommendations for an exploration program for the proposed levees and for certification of the existing levees.

**Mossy Rock Dam
Rehabilitation; Tacoma
Power
Cowlitz County,
Washington**

Engineer responsible for site investigation of the 110 ft high Mossy Rock Dam left abutment and carrying out stability and liquefaction assessments. Based on the results of the assessment a ground improvement design was developed involving the installation of stone columns. Field observation services were provided during construction and a post construction verification analysis was carried out.

**Cushman Dam
Rehabilitation; Tacoma
Power
Washington**

Engineer responsible for carrying out static and seismic slope stability assessment of right embankment and assessment of remediation alternatives. Also provided construction support for the selected remediation alternative, which consisted of excavation of loose material in the shell and replacement with compacted granular fill.

**Snoqualmie Casino
Project
Snoqualmie, Washington**

Engineer responsible for the geotechnical investigation and design/construction recommendations for the stormwater detention pond for the Snoqualmie Casino Project. The Pond consists of an impoundment with a storage capacity of approximately 15 acre-feet. Seepage and stability analyses were carried out to determine allowable slope angles and construction recommendations were provided addressing such issues as earthworks, subgrade, pipe penetrations, borrow sources and fill placement.

**Bremerton Marina
Bremerton, WA**

Engineer responsible for analyses related to pile supported structures including docks, berthing dolphins, a floating breakwater and a wave wall. Lateral and vertical pile capacity analyses were carried out to determine pipe pile sizes. Driveability analyses were also carried out. Construction support included quality assurance for over 200 steel H and pipe piles.

**Medina Pier
Medina, WA**

Engineer responsible for geotechnical investigation for a proposed replacement dock structure. Recommendations were provided for pile types and lateral/vertical loading analyses were carried out. Construction observation of pile installation was also carried out during construction.



Resumé

ANDREW J. WALKER

Aurora Bridge Seismic Retrofit
Seattle, Washington

Project Manager for geotechnical and geophysics investigation of the Aurora Bridge for the WSDOT seismic retrofit project. Project included a site-specific seismic assessment in order to develop ground motion time histories for specific bridge piers. Project also included an assessment of existing pile and spread footing foundations and a liquefaction assessment.

Sound Transit
Seattle, WA

Responsible for construction issues related to Contract 700 and 810 for the elevated track section and maintenance yard in south Seattle. Construction included drilled shafts up to 10 ft in diameter, piles and a variety of ground improvement techniques.

St. Lawrence Seaway/Bridge 4 Remediation
St. Catharines, Ontario, Canada

Project manager for assessment of Bridge 4 movement due to periodic canal dewatering and maintenance. Bridge 4 is a timber pile supported lift bridge constructed over the Welland Canal in 1920. Numerical assessment of historical bridge and slope movement. Design of remediation recommendations and cost estimates. Carried out additional CPT investigations and final design of tieback caisson wall to restrict future movements and ensure slope stability. Production of construction drawings and specifications.

Trilogy Redmond Ridge
Redmond, Washington

Project Manager for forensic assessment of a distressed MSE wall and associated house slab/wall cracking. The project included review of construction and design documents as well as recommendations for a stabilizing buttress wall constructed on auger-cast piles. Analyses included global and internal stability of the MSE wall.

Talus Development
Issaquah, Washington

Involved in a number of geotechnical aspects of this large office and residential community project in Issaquah, including design of a number of MSE retaining walls, slope stability analyses, culvert/bridge foundation designs and geotechnical investigations. Provided geotechnical engineering for the design and construction of a replacement bridge/box culvert under Newport Way on soft silt/clay, including the design of MSE approach walls.

Renton Airport Hanger Slab
Renton, Washington

Project Manager for forensic investigation of slab settlement within a hanger building. The project included review of existing data and estimation of future settlements. The investigation included coring through the slab and use of geophysics to locate voids. Recommendations for remediation methods were provided.

Chapter 16.52

FLOODPLAIN MANAGEMENT

Sections:

- 16.52.010 Findings
- 16.52.020 Purpose
- 16.52.030 Policies for Reducing Flood Losses
- 16.52.040 Definitions
- 16.52.050 The Flood Control Zone Permit Process - General Provisions
- 16.52.070 Provisions for Flood Hazard Reduction
- 16.52.080 Penalties for Noncompliance

16.52.010 Authority

The Legislature of the State of Washington delegated the responsibility to the City of Tukwila to adopt regulations designed to promote the public health, safety and general welfare of its citizenry.

(Ord. 2038 §1(part), 2004)

16.52.020 Purpose

This chapter aims to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas, by provisions designed to:

1. Protect human life and health;
2. Minimize expenditure of public money and costly flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. Minimize prolonged business interruptions;
5. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
6. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
7. Ensure that potential buyers are notified that property is in an area of special flood hazard; and
8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

(Ord. 2038 §1(part), 2004)

16.52.030 Definitions

Unless specifically defined below, words or phrases used in this chapter shall be interpreted to give them the meaning they have in common usage and to give this chapter its most reasonable application.

1. "A" means a zone on the Flood Insurance Rate Map (FIRM) where flooding is known to occur but no flood elevation has been determined.
2. "AH" means a zone on the Flood Insurance Rate Map (FIRM) characterized by base flood depths from

one to three feet, having no clearly defined channel or having an unpredictable and indeterminate channel, and where velocity flow may be evident. AH indicates ponding.

3. "AE" means a zone on the Flood Insurance Rate Map (FIRM) where base flood elevations are determined and are shown on the map.

4. "Appeal" means a request for a review of the interpretation of any provision of this chapter or a request for a variance.

5. "Base Flood" means the flood having a 1% chance of being equaled or exceeded in any given year; it is also referred to as the "100-year flood." Its designation on maps always includes the letter A.

6. "Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

7. "Critical Facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use or store hazardous materials or hazardous waste.

8. "Development" means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials located within the area of special flood hazard.

9. "Director" means the Director of the Public Works Department or his designee.

10. "DOE" means the Department of Ecology.

11. "Elevated Building" means – for insurance purposes – a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings or columns.

12. "Existing Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before 1981, the effective date of Tukwila's original floodplain management regulations.

13. "Expansion to an Existing Manufactured Home Park or Subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed, including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads.

14. "FBFM" means Flood Boundary/Floodway Map.

15. "FZCP" means Flood Zone Control Permit.

16. "FEMA" means Federal Emergency Management Agency.

17. "FIRM" means Flood Insurance Rate Map.

18. “Flood” or “Flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- a. The overflow of inland or tidal waters, and/or
- b. The unusual and rapid accumulation of runoff of surface waters from any source.

19. “Flood Zone” means any area designated as special flood hazard or flood-prone, or any area within the shoreline per the Tukwila Municipal Code.

20. “Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

21. “Flood Insurance Study” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

22. “Flood-Prone” means any land area susceptible to flooding not shown on FIRMs but designated as flood-prone by the Director, using best available information.

23. “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

24. “Lowest Floor” means the lowest floor of the lowest enclosed area (including basement). If an unfinished or flood-resistant enclosure is used solely for vehicle parking, building access or storage, if this enclosure is in an area other than a basement, and if this enclosure is built so that the structure meets the applicable non-elevation design requirements for non-residential construction, the enclosure is not considered the structure’s lowest floor.

25. “Manufactured Home” means a structure, transportable in one or more sections, built on a permanent chassis and designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

26. “Manufactured Home Park or Subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

27. “New Construction” means structures for which the “start of construction” commenced on or after 1981, the effective date of Tukwila’s original floodplain management regulations.

28. “New Manufactured Home Park or Subdivision” means a manufactured home park or subdivision for which the construction of facilities – including streets, utilities and concrete pads – is completed on or after 1981, the effective date of Tukwila’s original floodplain management regulations.

29. “NFIP” means National Flood Insurance Program.

30. “Recreational Vehicle” means a vehicle that is:

- a. Built on a single chassis;
- b. 400 square feet or less when measured at the largest horizontal projections;
- c. Designed to be self-propelled or permanently towable by a light duty truck; and
- d. Designed primarily for use as temporary living quarters for recreational, camping, travel or seasonal use.

31. “Shallow Flooding Area” means a designated AO or AH zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

32. “Special Flood Hazard Area” means the land in the flood plain subject to a 1% or greater chance of flooding in any given year. It is also referred to as the 100-year flood elevation or the base flood elevation. These areas are designated on Flood Insurance Rate Maps (FIRMs) using the letters A or V. Special flood hazard areas include flood-prone areas designated by the City.

33. “SFHA” means Special Flood Hazard Area.

34. “Start of Construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement occurred within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations, or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

35. “Structure” means a walled and roofed building, including a gas or liquid storage tank that is principally above ground.

36. “Substantial Damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

37. "Substantial Improvement":

a. "Substantial Improvement" means any repair, reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the assessed value of the structure, either:

- (1) Before the improvement or repair is started, or
- (2) Before damage occurred, if the structure is being restored.

b. For the purposes of this definition, "substantial improvement" occurs when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

c. "Substantial improvement" does not include:

(1) Any improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which is solely necessary to assure safe living conditions, nor

(2) Any alteration of a structure listed on the national Registry of Historic Places or a State inventory of historic places.

(Ord. 2038 §1(part), 2004)

16.52.040 Applicability

This chapter applies to all special flood hazard areas within the City of Tukwila jurisdiction.

(Ord. 2038 §1(part), 2004)

16.52.050 Special Flood Hazard Areas

The basis for special flood hazard areas identified by the Federal Insurance Administration is a scientific and engineering report entitled "The Flood Insurance Study for King County, Washington," dated December 6, 2001, and any revisions thereto, with an accompanying Flood Insurance Rate Map (FIRM), and any revisions thereto, hereby adopted by reference and declared to be a part of this chapter. The Flood Insurance Study and the FIRM are on file at 6300 Southcenter Boulevard, Suite 100. The best available information for flood hazard area identification as outlined in TMC 16.52.080 B.2 shall be the basis for regulation until a new FIRM is issued which incorporates this data.

(Ord. 2038 §1(part), 2004)

16.52.060 Interpretation

In the interpretation and application of TMC Chapter 16.52, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the governing body; and
3. Deemed neither to limit nor repeal any other powers granted under State statutes.

(Ord. 2038 §1(part), 2004)

16.52.070 Liability

The degree of flood protection required by TMC Chapter 16.52 is considered reasonable for regulatory

purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the City of Tukwila, any officer or employee thereof, or the Federal Insurance Administration for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

(Ord. 2038 §1(part), 2004)

16.52.080 Administration

A. The Public Works Director is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions. The Director may:

1. Restrict or prohibit uses which might create a danger to health, safety and property due to water or erosion hazards, or which might increase erosion, flood heights or flood velocities;
2. Require that uses vulnerable to floods, including facilities serving such uses, be constructed to protect against flood damage;
3. Control the alteration of surface water features – such as natural flood plains, stream channels and natural protective barriers – that retain or channel flood waters;
4. Control filling, grading, dredging and other development which may increase flood damage; and
5. Prevent or regulate the construction of flood barriers that would unnaturally divert floodwaters or that might increase flood hazards in other areas.

B. The Director's duties shall include, but shall not be limited to:

1. Permit Review

a. Review all development permits to determine that the permit requirements of this chapter have been satisfied.

b. Review all development permits to determine that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required.

c. Review all development permits to determine if the proposed development is located in the floodway, and ensure that the encroachment provisions of TMC 16.52.110, "Floodways" are met.

2. Special Flood Hazard Area

a. When base flood elevation data has not been provided in A zones, the Director shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Chapter 16.52.

b. Where flood elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source, the Director shall review applications for building permits to assure that

proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.

c. Where needed, the Director shall interpret exact location of the boundaries of the areas of special flood hazards – for example, where there appears to be a conflict between a mapped boundary and actual field conditions. The Director shall provide the person contesting the boundary location a reasonable opportunity to appeal the interpretation. Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76).

3. *Watercourse Alteration*

a. Notify adjacent communities and the Department of Ecology (DOE) prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.

b. Require that maintenance be provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

4. *Information Management*

a. Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in TMC 16.52.080 B.2, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor of all new or substantially improved structures, and ascertain whether or not the structure contains a basement.

b. For all new or substantially improved flood-proofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in TMC 16.52.080 B.2:

(1) Obtain and record the elevation (in relation to mean sea level) to which the structure was flood-proofed, and

(2) Maintain the flood-proofing certifications required in TMC 16.52.090 D.3.

c. Maintain for public inspection all records pertaining to the provisions of this chapter.

(Ord. 2038 §1(part), 2004)

16.52.090 Permits

A. A Flood Zone Control Permit (FZCP) shall be obtained before construction or development begins within any area of special flood hazard established in TMC 16.52.050.

B. Application for an FZCP shall be submitted with the project application for a shoreline permit, plat or subdivision permit, or a building permit, whichever comes first.

C. An FZCP is a Type 1 permit processed pursuant to TMC 18.108.010:

D. Application for an FZCP shall be made on forms furnished by the City and shall meet the City's standards for plan submittals. The applicant must provide the following information:

1. Elevation in relation to mean sea level, of the lowest floor of all structures;

2. Elevation in relation to mean sea level to which any structure has been flood-proofed;

3. Certification by a registered professional engineer or architect that the flood-proofing methods for any nonresidential structure meet the flood-proofing criteria in TMC 16.52.100 B.2; and

4. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

(Ord. 2038 §1(part), 2004)

16.52.100 Standards

A. *GENERAL STANDARDS* – In all areas of special flood hazards, the following standards are required:

1. *Elevation:* Where flood elevation data is not available, either through the FIRM or from another authoritative source, all new construction and substantial improvements shall be elevated at least two feet above the highest adjacent grade.

2. *Anchoring:*

a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

b. All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

3. *Construction Materials and Methods:*

a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

c. All new construction and substantial improvements on slopes shall have drainage paths to guide floodwaters around and away from proposed structures.

d. Electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

4. *Utilities:*

a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;

b. A proposed water well shall be approved by Department of Ecology (WAC 173-160-171);

c. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and

d. Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

5. Subdivisions:

a. All subdivision proposals shall be consistent with the need to minimize flood damage;

b. All subdivision proposals shall have public utilities and facilities – such as sewer, gas, electrical and water systems – located and constructed to minimize or eliminate flood damage;

c. All subdivision proposals shall have adequate drainage provided, to reduce exposure to flood damage; and,

d. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments that contain at least 50 lots or 5 acres (whichever is less).

B. SPECIFIC STANDARDS - In all areas of special flood hazards where base flood elevation data has been provided, the following provisions are required:

1. Residential Construction:

a. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.

b. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, and must meet or exceed the following minimum criteria:

(1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

(2) The bottom of all openings shall be no higher than one foot above grade.

(3) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

2. Nonresidential Construction:

a. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation, or together with attendant utility and sanitary facilities, shall:

(1) Be flood-proofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection, based on that engineer's or architect's development and/or review of the structural design, specifications and plans.

b. Nonresidential structures that are elevated, not flood-proofed, must meet the same standards for space below the lowest floor as described in TMC 16.52.100 B.1.b., for residential construction.

c. The City shall notify applicants who propose to flood-proof nonresidential buildings that flood insurance premiums will be based on rates that are one foot below the flood-proofed level (e.g. a building flood-proofed to the base flood level will be rated as one foot below).

3. Manufactured Homes:

a. All manufactured homes to be placed or substantially improved on sites, outside of a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood, shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately-designed foundation system to resist flotation, collapse and lateral movement.

b. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions shall be elevated so that either:

(1) The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or

(2) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

4. Recreational Vehicles: Recreational vehicles placed on sites are required to either:

a. Be on the site for fewer than 180 consecutive days;

b. Be fully licensed and ready for highway use, on its wheels or jacking system, be attached to the

site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or

c. Meet the requirements for manufactured homes, including the elevation and anchoring requirements for manufactured homes.

C. **GREEN RIVER** - In addition to the general and specific standards in the section, the following standards apply to all areas adjacent to the Green River:

1. **Construction/Reconstruction of Dikes/Levees:** As part of the floodproofing for developments adjacent to the Green River through Tukwila, construction or reconstruction of the dike/levee system, in accordance with dike/levee plans and engineering studies, and in accordance with the Green River Management Agreement (AG No. 85-043), will be required as part of the plan submittal.

2. If dike/levee improvements are not required, and the natural riverbank is allowed as bank protection, then a river bank stability analysis shall be provided to the Public Works Department for review as part of the plan submittal.

3. Dedication of levee/dike/riverbank access construction and maintenance easements on all properties adjacent to the Green River shall, as part of their development, dedicate construction and maintenance easements for access and maintenance of existing or future dikes/levees/riverbanks along the Green River as part of their plan submittal. These easements shall be provided in such a manner so that immediate access is allowed from other public rights-of-way for maintenance and construction of dikes/levees.

(Ord. 2038 §1(part), 2004)

16.52.110 Floodways

A. Floodways are located within special flood hazard areas. Floodwaters within floodways are extremely hazardous due to high flow velocities. These waters carry debris and potential projectiles, and have a high potential for erosion.

B. The following provisions apply to floodways within the City:

1. Variances shall not be issued for proposals within a designated floodway, if any increase in flood levels during the base flood discharge would result.

2. Prohibit encroachments, including fill, new construction, substantial improvements and other development, unless a registered professional engineer certifies – through hydrologic and hydraulic analyses, performed in accordance with standard engineering practice – that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.

3. Prohibit construction of new residential structures.

4. Allow repairs, reconstruction or improvements to residential structures, as long as the structure's ground floor area does not increase and the cost of the work does not exceed 50% of the market value of the structure either:

a. before the repair, or reconstruction is started, or

b. if the structure has been damaged, and is being restored, before the damage occurred.

Any project to correct existing violations of state or local health, sanitary or safety code specifications identified by the Code Enforcement Official and which are the minimum necessary to assure safe living conditions, or to structures identified as historic places, shall not be included in the 50%.

C. If proposed work satisfies TMC 16.52.100 B.1–B.4, all new construction and substantial improvements shall comply with all applicable standards in TMC 16.52.100.

(Ord. 2038 §1(part), 2004)

16.52.120 Critical Facility

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA). The Director may permit construction of a new critical facility within the SFHA if no feasible alternative is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above base flood elevation or elevated to the 500-year flood elevation, whichever is higher. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access to and from the critical facility should also be protected to the height utilized above. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

(Ord. 2038 §1(part), 2004)

16.52.130 Penalties

No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this chapter and other applicable regulations. Violations of the provisions of this chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than \$1,000, or imprisoned for not more than 90 days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the City of Tukwila from taking such other lawful action as is necessary to prevent or remedy any violation.

(Ord. 2038 §1(part), 2004)

16.52.140 Abrogation and Greater Restrictions

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants or deed restrictions. However, where this chapter and another ordinance, easement, covenant or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

(Ord. 2038 §1(part), 2004)

END

ENVIRON

April 20, 2009

Mr. Jeff Weber
Gordon Derr, LLP
2025 First Ave., Suite 500
Seattle, WA 98121-3140

Re: Comments on the City of Tukwila Proposed Shoreline Master Program Update

Dear Jeff:

INTRODUCTION

An international technical and scientific consultancy, ENVIRON provides state-of-the-art scientific, engineering, and strategic risk management assistance to clients worldwide. Company staff has completed best available science (BAS) updates for municipalities in Washington in compliance with the Growth Management Act and a number of projects in the Green/Duwamish watershed and are familiar with the existing habitat conditions, limiting factors to federally-listed fish species, and regional salmon recovery plans. At your request, we have reviewed the proposed City of Tukwila (City) Shoreline Master Program (SMP) Update.

ENVIRON reviewed the Planning Commission's proposed SMP Update as well as the May 2007 *Shoreline Inventory and Characterization* report prepared by ESA Adolfson, contemporary aerial photographs, and other supporting documentation on the City's SMP Update webpage at <http://www.ci.tukwila.wa.us/dcd/shoreline.html>. Our assessment focuses on the existing shoreline conditions and functions of the Green/Duwamish River; existing buffers; the City's proposed buffers in its SMP Update and whether these are justified in terms of the requirements of the Shoreline Management Act to provide "no net loss" of shoreline functions and/or to respond to the impacts of development on landward properties.

As indicated in the definitions section of the proposed SMP Update (at p. 13 of the strikeout version), **No Net Loss** "means a standard intended to ensure that shoreline development or uses, whether permitted or exempt, are located and designed to avoid loss or degradation of shoreline ecological functions that are necessary to sustain shoreline natural resources. In cases where unavoidable loss results from allowed uses or developments, the standard is met through appropriate mitigation, consistent with the provisions of this master program." The concept of "no net loss" is covered in WAC Chapter 173-26 and our analysis below addresses "no net loss" as that concept is defined in that chapter.

EXISTING CONDITIONS AND FUNCTIONS

As accurately articulated by ESA Adolfson and indicated in the proposed SMP update, "The Green/Duwamish River has undergone extensive modifications in the past to reduce channel migration and limit the extent and duration of valley flooding. The modifications include both natural river course changes and major engineering projects in the early part of the 20th century that diverted the White, Black and Cedar Rivers to neighboring basins (at p. 21 of the strikeout version)." It has been estimated that these alterations reduced the flow within the river by two thirds. In addition to these hydrologic alterations, much of the floodplain has been converted to various commercial, residential, and industrial land uses. The sinuosity of the river has been reduced through channelization and the river is largely disconnected from the floodplain by constructed levees built to protect development in the floodplain. This has greatly reduced the

hydrologic and associated functions of the river and reduced the structural diversity and complexity and associated functions within the riparian zone.

In addition to these hydrologic and geomorphic alterations, development has resulted in the loss of most of the associated wetlands and native riparian vegetation. Though there are small remnants of native riparian plant associations along the banks of the river, these remnants are primarily composed of earlier seral phases, lack much structural complexity and are generally low functioning. As indicated by ESA Adolfson's characterization study, there are few large trees on the banks of the river, which has resulted in low large woody debris (LWD) loading, loss of structural diversity within the river for fish and other aquatic biota, and diminished ecological processes and functions of the shorelines. Various human activities have reduced the structural complexity of remaining vegetation and contributed to the abundance of invasive plant species. As shown in the master plan update and characterization studies, reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus armeniacus*) among other invasive species are abundant and widespread. In places, invasive species are so abundant that they completely exclude native plants contributing to the existing degraded conditions. Existing SMP buffers required are 40 feet and along much of the river, this is about the extent of the remaining undeveloped area with areas further landward having been converted to developed uses. Table 1 and photographs in Attachment A document these typical relatively narrow existing riparian buffers within the proposed Urban Conservancy Shoreline Environment.

ANALYSIS OF PROPOSED BUFFER AND LEVEE RESLOPING

In areas with levees, the SMP update proposes a buffer of 125 feet with the purpose of providing sufficient area to reslope the levees to a slope of 2.5 to 1 and provide a mid-slope bench for planting vegetation. The proposed levee resloping to a 2.5:1 slope with a mid-slope vegetation bench would *improve* ecological processes and functions somewhat compared to existing conditions in some places. However, for the reasons discussed below, in our opinion neither the proposed buffer nor the resloping of the levees (should that ultimately occur) is needed to mitigate the impact of development occurring landward of the levee or to achieve "no net loss" of shoreline functions.

Fixed vegetated buffers have been adopted to protect the functions of environmentally sensitive or critical areas, such as streams and wetlands. Scientific literature is replete with examples of the function and value of buffers of native riparian vegetation (Johnson and Ryba 1992; Knutson and Naef 1997; Sheldon et al. 2005; Naiman et al. 2005) to the protection of existing functions of adjacent critical areas. One of the most often attributed functions of riparian vegetation is water quality protection. Water quality protection functions of riparian areas is dependent on slope, soil type, vegetation density, characteristics of water flow (e.g., concentrated or diffuse), and other factors. Listed salmonids require good water quality and this would appear to be an important attribute of riparian vegetation to be considered.

However, because of the way stormwater runoff from developed areas is handled under modern regulations and practices, the water quality protection function of riparian vegetation is often limited. This is clearly the case in Tukwila, particularly in new developments, where stormwater runoff from impervious surfaces is captured in a series of catch basins and pipes and then detained and treated before being discharge into the receiving water body. Riparian vegetation is not relied upon for treatment. In older developments, stormwater is typically piped directly into the river, bypassing riparian vegetation. Of equal importance, in areas with existing levees, the levee itself physically separates the river from upland development and precludes many

impacts it otherwise might have on the river (either in the case of existing or new development). As such, new development or redevelopment of already developed areas landward of the existing levees would not result in any meaningful impacts to the degraded and generally low functioning existing shorelines.

Thus, increasing the buffer width to 125 feet in levee areas, regardless of whether the levee is resloped or not, is largely irrelevant to mitigation of the impacts of new development landward of the levee. We note that the SMP does not require resloping of the levee, but even if the levee were resloped and vegetated, the vegetation likely would not be needed to reduce impacts of adjacent landward development. Similarly, the vegetation is not needed to achieve "no net loss" in the sense that term is used by the SMP and WAC Chapter 173-26. The effect of that the mid-slope vegetation appears to be not to mitigate impacts of development but rather to restore degraded functions. Indeed, the language of the SMP in a number of places seems to reflect that this is the City's intent.

However, even if there were some impact of landward development in levee areas that needed to be mitigated, we do not believe the City's proposed levee resloping with the specific profile proposed by the City can be supported as a reasonable mitigation measure. For a variety of reasons, we believe the ecological benefits of a mid-slope bench are overstated by the City. The SMP Update indicates that "key" riparian functions of maintenance of water quality, contributing to in-stream structural diversity, and providing biotic input of insects and organic matter would be restored by adopting a 15-foot-wide mid-slope vegetated bench. Because of the narrow character of the bench, location of Tukwila at the bottom of the watershed, and influence of Puget Sound tides, even a mature forested strip on the mid-slope bench would not likely have any influence on water temperature. As indicated in the *Shoreline Inventory and Characterization* report, where the river flows into the southern boundary of the City, it has drained approximately 440 square miles or about 78 percent of the total basin area. The portion of the Green River within the City's existing and/or proposed annexation limits are approximately from River Mile 4 to 17. Tidal influence extends to approximately RM 11. The temperature of Puget Sound water would have a strong influence on water temperature and the proposed riparian restoration would likely have no effect on it. Since it is unlikely that there would be a beneficial shading effect or reduction in water temperature, it is unlikely there would be a measurable beneficial influence on dissolved oxygen. As for removal of metals and other pollutants in stormwater runoff contributed to the river from developed areas, the riparian vegetation would add fine particulate organic matter (FPOM) primarily in the form of deciduous leaves in the fall. This FPOM would not measurably change the hydraulic residence time, which appears to be the primary factor influencing metals and pollutant removal. Therefore, it is unlikely that these allochthonous inputs of FPOM would significantly improve pollutant removal.

A mid-slope bench could provide a source of potential large woody debris (LWD), when planted trees mature. As has been indicated in supporting inventory documentation, there is little wood in the river within the City which might retain smaller LWD and form stable debris jams. In addition, it is unclear if trees that fell on the levee would be allowed to remain there out of concern that such LWD might contribute to scouring, which could jeopardize the integrity of the levee. So, although the importance of LWD to instream processes is clear, the relative potential contribution to the restoration of ecological and shoreline functions from trees planted in the narrow bench appears to be exaggerated.

Similarly, the potential value of allochthonous FPOM and coarse particulate organic matter from a restored riparian community in the proposed position on the levee at this juncture in the river appears somewhat limited. Again the scientific literature is clear that both FPOM and CPOM contribute to the structural habitat complexity and functioning of river systems. However, in a

managed system, such as the Lower Green River, whether such inputs are retained would determine the relative contribution to in river functions. The river continuum concept (Vannote et al. 1980) suggests that autotrophic production is more influential on aquatic food webs in higher ordered streams, such as the Green River. Assuming that at least some of the FPOM and CPOM are retained within the river, there would be a contribution to riverine food webs. However, much of the potential allochthonous inputs would likely not be retained in the river but flushed into Elliott Bay reducing the potential influence on aquatic macroinvertebrate production and potential increase in prey resources available to migrating salmonids or other biota in the river.

In any event, it is quite possible to create improved vegetation conditions and better functions in the context of levee reconstruction without a mid-slope bench. We do not see any analysis in the SMP or the ESA Adolphson materials that attempts to correlate the beneficial effects of vegetation on a mid-slope bench with mitigation of any particular impacts of landward development.

Finally, it should also be noted that the vegetation to be provided on the resloped levee (including mid-slope bench) goes far beyond what would be required to replace the degraded functions of the vegetation on the existing levees. Moreover, there are a variety of levee configurations other than that proposed in the SMP that would improve functions over existing conditions.

If you have any questions or need any clarification on the information presented, please call me at (206) 336-1654.

Sincerely,

ENVIRON INTERNATIONAL CORPORATION



SCOTT LUCHESSA

Certified Ecologist, M.S.

Attachments:

Table 1

Attachment A – April 2009 Reconnaissance

LITERATURE CITED

Johnson, A.W. and D.M. Ryba. 1992. A literature review of recommended buffer widths to maintain various functions of stream riparian areas. Prepared for King County Surface Water Management Division, Department of Natural Resources, Seattle, WA.

Knutson, K.L. and V.L. Naef. 1997. Management recommendations for Washington's Priority Habitats: Riparian. Washington Department of Fish and Wildlife, Olympia, WA.

Naiman, R.J., H. Déchamps, and M.E. McClain. 2005. Riparia: ecology, conservation, and management of streamside communities. Elsevier Academic, Boston, MA.

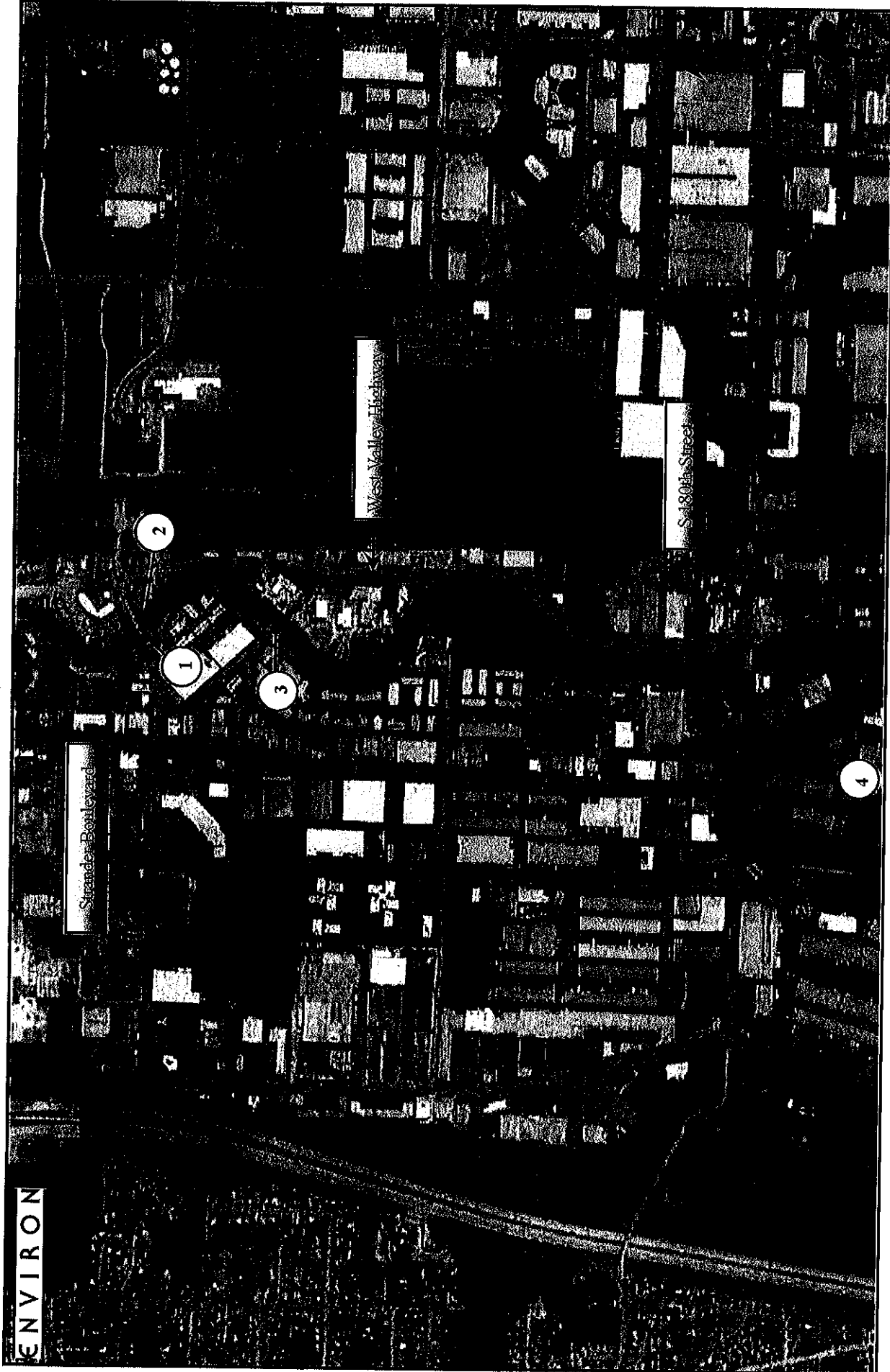
Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale. 2005. Wetlands in Washington State - Volume 1: A Synthesis of the Science. Washington State Department of Ecology. Publication #05-06-006. Olympia, WA.

Vannote, R.L., G.W. Minshall, K.W. Cummins, J.R. Sedell, and C.E. Cushing. 1980. The river continuum concept. Can. J. Fish. Aquat. Sci. 37:130-137

Attachment A:
April 2009 Reconnaissance

Table 1. Typical riparian buffers along the Green River in the proposed Urban Conservancy Shoreline Environment in Tukwila, Washington observed by ENVIRON in April 2009.

Photo ^a	Direction	Proposed SMP Designation	Riparian Vegetation
4	NNW	Urban Conservancy	Dense Himalayan blackberry and horsetail; few big-leaf maple trees and willows
5	SSE	Urban Conservancy	Dense Himalayan blackberry, reed canarygrass, and giant knotweed; few big-leaf maple, black cottonwood, and willows
6	NNE	Urban Conservancy	Dense Himalayan blackberry and reed canarygrass; a few big-leaf maple and red-osier dogwood
8	W	Urban Conservancy	Dense Himalayan blackberry and reed canarygrass; few big-leaf maple trees
^a Photo numbers correspond to those in Attachment A. Direction in the second column refers to the direction the photo was taken, such as south southwest (SSW).			



Locations of April 2009 Reconnaissance Photographs of the riparian zone of the Green River. See Attachment A for photographs and Table 1 for descriptions of buffers. (Source: 2007 aerial photograph downloaded from King County iMAP website on April 15, 2009.)



Photograph 1 – Looking NNW at a 35-ft buffer to the edge of the Interurban Trail within the Urban Conservancy Shoreline Environment at Bicentennial Park from the Strander Blvd. Bridge.



Photograph 2 - Looking SSE at a 66-ft buffer to the edge of the Interurban Trail from the Strander Blvd. Bridge near RM 13.



Photograph 3 – Looking NNE at a 44-ft buffer to the edge of the Interurban Trail from the railroad trestle near RM 13.5 within the proposed Urban Conservancy Shoreline Environment.



Photograph 4 – Looking W at the ~30- to 60-ft wide buffer of primarily dense Himalayan blackberry and reed canarygrass within the proposed Urban Conservancy Shoreline Environment near RM 15.



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EXPERTISE

Ecology & Sediment
Management

Environmental Impact
Assessment & Planning

Water Quality Management

Regulatory Support

Litigation Support

CREDENTIALS

MSc, Environmental Studies,
University of Montana

BS, Biology, San Diego
State University

Certified Ecologist,
Ecological Society of
America 1999

PADI, Open Water Scuba
Diver

Watershed Analyst Level II:
Fish Habitat, Water Quality,
& Riparian; Washington
Department of Natural
Resources 1997

President, Pacific Northwest
Chapter of the Society of
Wetlands Scientists

Mr. Luchessa has over 23 years of experience in terrestrial, wetlands, and aquatic ecology. He designs, manages, and implements stream habitat inventories, and fish population studies. Mr. Luchessa designs and implements wetland mitigation, restoration, and creation plans; natural resource monitoring studies; and habitat management plans. In addition, he has helped public and private-sector clients obtain permits and needed approvals for implementing mitigation plans and development from municipalities, state, and federal government agencies, including clearing and grading permits, floodplain development permits, Hydraulic Project Approval, Section 401 Water Quality Certification, federal Clean Water Act (CWA) Section 404/10 permits, and Endangered Species Act (ESA) Section 7 consultation. He has also completed hundreds of wetland delineations, assisted with lake restoration projects, and conducted various plant and animal surveys, impact assessments, and other environmental studies, all in compliance with NEPA, NRDA, CWA, ESA, GMA, SMA, and other laws.

EXPERIENCE HIGHLIGHTS

- Developed and implemented a hydrologic monitoring plan, delineated wetlands, prepared wetland delineation and biological assessment needed to obtain a multitude of permits and approvals for the 106-acre Smokey Point Master Plan Development in Marysville, Washington. Prepared conceptual, draft, and final wetland mitigation plans and specifications necessary for obtaining individual Section 404 and Section 401 Water Quality Certification from the U.S. Army Corps of Engineers and Washington State Department of Ecology needed to implement the approved compensatory mitigation plan. Provided construction oversight and post-construction mitigation monitoring and completed annual monitoring reports to comply with permit requirements.
- Successfully managed multiple environmental discipline reports and preparation of a NEPA Environmental Assessment for the Coffman Cove ferry terminal on the Prince of Wales Island in Alaska for the U.S. Department of Agriculture, Forest Service. Lead biologist on preparation of the Biological Assessment for successful completion of the ESA Section consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service.
- As part of a NRDA settlement claim for the City of Tacoma, prepared draft and final wetland and riparian habitat restoration plans for the Middle Waterway Habitat Restoration project. Developed planting plans for intertidal salt marsh and riparian habitats using native plants, and prepared monitoring and adaptive management plans, specifications, and performance standards. Also prepared cost estimate for completing plant installation and habitat restoration.
- Successfully assisted the municipalities of Mukilteo and Bothell in incorporating best available science (BAS) into critical areas code updates as required by the Growth Management Act. Prepared and provided senior technical oversight on BAS studies documenting the existing conditions and functions of wetlands, streams, and fish and wildlife habitat conservation areas as well as the buffers necessary to protect existing functions. Provided expert witness testimony at public hearings and expert advice to the City Council of Bothell and Planning Director of Mukilteo.
- Delineated wetlands throughout the Denali National Park corridor in Alaska at 11 potential gravel borrow sites. Prepared a jurisdictional wetland delineation report that assessed potential impacts from gravel mining operations on wetlands, identified wetland function and values, and evaluated potential wetland mitigation opportunities and constraints. Work was completed in support of a 10-year gravel acquisition plan NEPA Environmental Assessment.



ENVIRON